THE RAILWAY GAZETTE
A Journal of Management, Engineering and Operation
INCORPORATING
Railway Engineer · TRANSPORT · The Railway News
The Railway Times · Herapath's Railway Journal · RAILWAY RECORD.
RAILWAYS ILLUSTRATED · ESTABLISHED 1835 · RAILWAY OFFICIAL GAZETTE

PUBLISHED EVERY FRIDAY
AT
33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1

Telegraphic Address: "TRAZETTE PARL., LONDON"
Telephone No.: WHITEHALL 9233 (12 lines)

Annual subscription payable in advance and postage free
British Isles and Abroad .....£2 5s. 0d.
Single Copies .....One Shilling
Registered at the General Post Office, London, as a Newspaper

VOL. 85 NO. 8 FRIDAY, AUGUST 23, 1946

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An index to the eighty-fourth volume of THE RAILWAY GAZETTE *covering the issues from January 4 to June 28, 1946, has been prepared, and is now available free of charge on application to the publisher*

52nd Year of Publication

UNIVERSAL DIRECTORY OF RAILWAY OFFICIALS AND RAILWAY YEARBOOK 1946-1947

Price 20s. *Post Free* 20s. 6d.

THE RAILWAY GAZETTE
33, TOTHILL STREET, WESTMINSTER, S.W.1

Rail Stockholders' Response on Nationalisation

THE recent request by the Chairmen of the four main-line railway companies to stockholders, that they should indicate on a postcard whether they favour the taking of all possible steps by the Boards to oppose any nationalisation proposals affecting the railways, has met with a large response. Details of the action taken by the Chairmen, and extracts from the letters sent to stockholders, were given in our July 5 issue. About 1,100,000 stockholders were sent the postcard, and Mr. Ernest Short, Secretary of the Railway Stockholders' Union, has stated that no fewer than 600,000 replies have been received and that of these all but 3 per cent. expressed themselves as opposed to nationalisation of the railways. It is expected that final checking of the voting figures will take another week or more to complete. It is also stated that membership of the Railway Stockholders' Union has trebled since the commencement of the campaign.

* * * *

Less Work for More Money

The increasing disparity between the number of hours worked, and the remuneration received, by large sections of industrial employees, is brought out in a series of tables published recently in the *Ministry of Labour Gazette*. The fact that more money was being received for fewer hours of work would not assume its present importance if there were any assurance, or even reason to suspect, that a greater rate of output also was being achieved. Unfortunately, there is no indication that this is so. The result, therefore, must be that costs of production are inflated, and this at a time when it is becoming increasingly clear that before long the present sellers' market may be expected to end, and competition, more especially for overseas business, will tend to become acute. In the home market the effect of greater reward for smaller productivity helps to swell inflationary tendencies, and inasmuch as the rise in prices outstrips the advance in wages, the recipient of the enhanced pay packet is worse off, and the effect on those whose incomes either are fixed, or not readily adjustable, may be very serious.

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All-Round Advances

The *Ministry of Labour Gazette* tables cover returns furnished by approximately 52,400 establishments and over 5,000,000 employees. In every case the average weekly earnings in January were greatly in excess of those in October, 1938, whereas the average hours worked were less. The average percentage increases for weekly earnings, in the case of men, ranged from 46 per cent. (for those employed in Government industrial establishments) to 84 per cent. (textile workers), and the overall percentage increase was 65 per cent. The advances, in the case of youths, women, and girls, were all greater than those for men, ranging up to 85 per cent. in the case of girls under 18 years of age, and for all workers the increase was 74 per cent. The number of hours worked in January last, in the case of men, was 47.4, and for all workers was 45.8. In the last pay week of October, 1938, the corresponding figures were 47.7 and 46.5 hours. In the metal, engineering, and shipbuilding industries the average weekly earnings for men last January were 122s. 7d., which was 63 per cent. more than in October, 1938, and for all workers it was 103s., or 73 per cent. more. The greatest advance occurred in the average weekly earnings of women workers which, at 64s., were 92 per cent. greater. The average hours worked in January by men in these industries were 47·6, compared with 48 in October, 1938, and for the whole of the workers in the group was 46.2, compared with 47.1. Average hourly earnings for men were 2s. 6·9d., which was 65 per cent. above the October, 1938, level. For all workers the hourly rate was 2s. 2·8d., an increase of 76 per cent.

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De-Centralised Administration in India

The divisional system of administration and operation has now been in force on the North Western Railway of India for over 20 years. There are seven divisions, each with an average route-mileage of just under 1,000, the size of a small railway, over which the Divisional Superintendent has wide powers as

chief executive officer. There is, however, close co-ordination with other divisions through the railway headquarters administration, and periodical Divisional Superintendents' Conferences are held in Lahore, over which the General Manager presides and at which all principal officers of departments are present. At the 33rd of these conferences, the General Manager, Mr. A. G. Hall, referred to the system's ambitious programme of track improvements to meet increased speeds, and pointed out that the works involved provided admirable opportunities for training young engineers. He also announced that it had been decided to change over from wooden-bodied to all-steel carriage stock. Regarding the great improvement in the stock position, he said that the record of the N.W.R. was equalled only by that on the Bombay, Baroda & Central India Railway. This improvement has been due mainly to the efficiency of day-to-day stock control, enabling turn-round figures to be watched constantly. Mr. Hall concluded by asking Divisional Superintendents to do all they could to assist men returning to the railway from the armed forces.

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Exceptional Traffic on Swiss Federal Lines

Some indication of the exceptional demands made on the Swiss Federal Railways is given in the first quarterly report for the present year. During this time 60,000 British soldiers on leave from Italy were conveyed over the Brigue-Vallorbe (Simplon) route, and 1,000 injured men, with a corresponding reverse traffic, and 65,000 American soldiers went for leave into Switzerland. Over 10,000 children, who had been in the country, practically as refugees, were returned to their homes, and 8,300 others, Belgian, French, Dutch, Italian, and Austrian, arrived for holidays. Nearly 15,000 Austrian prisoners of war passed through on their way home from France, and 630 interned persons, Poles, Czechs and Jugoslavs, left the country. A considerable number of persons suffering from pulmonary complaints were conveyed to sanatoria. Many Swiss citizens also arrived back from other countries and 480 miners went to assist in the Belgian mines at Namur. Some 360 American students arrived to take university courses at Berne, Neuchâtel, Fribourg, and other places. Altogether, 717 special trains were run, mostly of Swiss stock.

* * * *

The Importance of Frequent Service

A feature of present-day timetable arrangements on certain routes is the importance attached to providing the great centres of population with frequent service, even at the expense of a reduction in overall speed. A case in point is the city of Sheffield on the L.M.S.R. From the speed point of view it is an attraction to take the original Midland main line direct from Chesterfield to Rotherham, not merely avoiding Sheffield and saving 2 miles in distance, but also cutting out the toilsome 1 in 100 climbs on both sides of Broadway Tunnel, between Chesterfield and Sheffield on the loop which gives access to the city. Throughout Midland history certain expresses used the direct line, giving connections to and from Sheffield either at Chesterfield or Rotherham. Now, however, except on summer Saturdays, the direct line is deserted by long-distance passenger trains, and, though at a cost of at least 15 min. in additional running time, all express trains run *via* Sheffield. In earlier years the same thing happened at Derby; at the time of Midland and London & North Western competition for the London-Manchester traffic, the best trains avoided Derby by the Chaddesden spur, but Derby then became too important to be by-passed, and from then on all the St. Pancras-Manchester trains without exception have included a Derby stop in their schedules.

* * * *

Fused Zinc *vice* Paint to Protect Steel

What may well prove to be far-reaching measures for the protection of steelwork from corrosion due to salt air and spray are being taken in the treatment of some 1,300 sq. ft. of steelwork in the San Francisco-Oakland Bay Bridge, exposed to salt spray. A special gun has been designed and patented to spray powdered zinc into a jet of flame at a temperature of about 1,600°, where it is fused and directed on to the bare steel, previously cleaned by sand blasting. In this way a zinc coating, roughly $\frac{1}{100}$ in. thick, is applied to the steelwork, which, it is claimed, will last for eight or nine years, as compared with the ordinary protection of paint effective for only about three years. No figures of cost, so far as we are aware, have yet been made public, but any satisfactory method that is not prohibitively expensive, and at the same time increases threefold the period between such maintenance works in coastal areas, is worthy of consideration. Similar methods applied for the protection of steel from other causes of corrosion, such as locomotive blast and fumes, and also salts and acids carried in goods stock, may be found to be both effective and economical in the long run.

* * * *

Stabilisation of Complicated Junctions by Grouting

Measures taken in America to stabilise main lines in open country by pressure cement grouting have been described in our columns from time to time. Generally similar measures, however, have also been adopted for complicated junction trackwork, notably in the 367-track-mile territory of the St. Louis Terminal Railroad Association. There, a number of groups of from three to twelve crossings, involving double slips and special installations, formerly required abnormally heavy maintenance, due in the main to their being on embankments over soft blue clay sometimes 60 ft. in depth. Among them is Grand Crossing, where three tracks cross three others on the level almost at right angles, and Relay Station with twelve crossings carrying some 700 traffic movements daily. Various mixtures of cement, sand, and water were tried, but considerable difficulty was experienced with plugged discharge pipe lines, and eventually neat cement and water was adopted as standard, in the proportion of 6 to 10 gal. of water to each sack of cement. Up to 1,000 gal. of such grout have been injected in an eight-hour day, and, apart from a slight increase in the batter and wear on certain crossings—due to the reduced cushioning effect of the consolidated ballast and subsoil—results are considered to be highly satisfactory. Maintenance costs have been reduced by more than 50 per cent.

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Steel Rail Composition

During the past forty years the British Standard steel rail specifications have laid down with great precision the limits of chemical composition to which the steel must conform. Maximum and minimum limits are given for carbon, manganese, and silicon, and phosphorus and sulphur, both considered harmful in their effects, must not exceed certain prescribed maxima. The same principle obtains in the United States, but not, generally, on the mainland of Europe, where the tendency has been to stiffen the testing and to concentrate on the safeguard so afforded. The latter may be, after all, the more satisfactory plan. Although it is still desirable, no doubt, to lay down a definite limit to phosphorus, and in the interests of toughness and cleanness in the steel to require minima of manganese and silicon, the higher limits might well be left to the discretion of the manufacturer. The cost of ferro-manganese and ferro-silicon certainly would preclude any undesirable excess in the manganese and silicon percentages, and it is in the interests of the user to get as much of both in his steel as he can at the standard rail price. The right percentage of carbon is safeguarded automatically by the physical tests, which in any event must be the final court of appeal. Indeed, it has been by breaking away from the B.S. chemical composition limits, as the L.N.E.R. did with its medium manganese rail in 1929, that substantial improvements in rail steel quality have been brought about.

* * * *

Relay Interlocking in Spain

In common with a number of Continental railway systems, the R.E.N.F.E. in Spain has felt attracted to relay interlocking, and two installations have been completed, at Corunna and Santiago, typical of the arrangements now used at stations of moderate size in that country. The Corunna station concerned is the terminus of the new single line from Santiago and has six platform lines. Santiago Station has five through running lines and leads on the south to two single lines to Zamora and Vigo. Electrical point working, frequently with facilities for local operation by shunters, is provided, with

colour-light signals, the home signals having outer signals in rear, equivalent to the old red disc. There are also some colour-light shunt signals. In addition, the points are equipped with indicator lanterns of German type, one special indicator serving to give the four possible positions of a set of double slips. The German horizontal bar indicator is used at derailers. Signals and points are operated individually from separate switches on the panel, which has the usual diagram, with lamp indicators repeating the action of the various functions. The lines are completely track-circuited and full route and point locking controls are provided. It appears likely that this system will be extended to other stations shortly.

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The Henschel Condensing Locomotive

Allied personnel operating German railways have encountered many condensing locomotives designed and built by Henschel & Son, of Kassel, first for export to Russia, and later for use in Germany. We recently had an opportunity of examining a manual, translated into English from the maker's brochure of July, 1944, on their constructional features, with some notes on operation and maintenance. This information is published, in abridged form, elsewhere in this issue. Probably the large-scale adoption of condensing locomotives, in Russia and in Germany, was through military necessity. It may be an advantage in wartime to have a locomotive which can travel far without re-watering, even if its fuel consumption is little less than normal. For the Russian 2-10-0 condensing locomotives, however, which came into use from 1936, an economy up to 20 per cent. in coal consumption has been claimed. These locomotives were noticed—necessarily briefly—in our summary of Dr. Lomonossoff's world-survey of condensing locomotives (see our issue of June 2, 1944). It might not be easy to make out a good case for the adoption of condensing locomotives in the United Kingdom, but recent experience suggests that, given suitable climate, and in sufficiently pressing circumstances, there are certain advantages to be gained.

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Rejuvenated American Locomotives

The Chicago & North Western Railroad recently was faced with the need for making a decision on the fate of the thirty-five 4-8-4 locomotives forming class "H" on that system. These engines, built in 1929, had proved to be somewhat expensive to maintain, and spent rather more time in repair shops than a good engine should. Nevertheless, they represented a considerable amount of capital, so rather than scrap them, the management decided to rebuild them, with a number of improvements. The changes effected in the design are both significant from the administrative viewpoint and of great technical interest. The original weak design of bed-frame casting, which gave continued trouble through repeated fractures, has been replaced by a nickel-steel cast bed-frame incorporating also the main reservoir for the brake, and the back cylinder heads. Timken roller bearings are now used on all axles, and the spring gear has been redesigned to suit; nickel steel rods have appeared; and larger-diameter tubes and flues have been fitted. Steam ports and passages have been redesigned, and have been enlarged and streamlined in the process. The new multiple-bearing crossheads are massive; and the slide bars are supported by frame brackets only, and not connected to the cylinders—a feature adopted some two generations ago in Great Britain by Dugald Drummond. Greatly increased mileage and reduced maintenance are expected from these changes.

* * * *

G.W.R. Housing Scheme Difficulties

IT is not generally appreciated that, in the normal course of promotion, railwaymen often have to remove from one place to another on their company's system, and that filling a vacancy caused by the retirement or death of a railwayman may occasion the removal, not only of his successor, but of a number of others concerned in the contingent staff changes. If, in cases where all-line schemes of promotion exist, railwaymen become unwilling to accept promotion because of their inability to secure housing accommodation, serious difficulties might arise in the operation of the line. For this reason, following the serious housing shortage which existed after the 1914-1918 war, the G.W.R. obtained Parliamentary powers in 1923 to build houses for occupation by its staff. It was then decided that the best way of accomplishing the desired object was by the formation of Garden Village Housing Societies, with committees of management consisting of employee-tenants, and between 1923 and 1939 over 1,600 houses were provided for the company's employees under this arrangement, situated at eight centres on the line. The procedure was for the sites to be acquired by the company, roads, paths, and sewers constructed, and for arrangements to be made by the individual societies for the erection of the houses, the company advancing 90 per cent. of the expenditure involved. In addition, the G.W.R. introduced in 1923 an individual loan scheme whereby advances were made to members of the staff to enable them to purchase houses for their own occupation, the loan being repaid by deductions through the paybill over periods not exceeding twenty years. This scheme has enabled over 3,300 members of the company's staff to become the owners of their houses.

The recent six years of war have had a far more detrimental effect on housing conditions throughout the country than did the 1914-1918 war, and the question of housing accommodation has become most acute. The Government's policy is directed to the provision of houses through the local authorities, but the Minister of Health apparently recognised the value of housing societies similar to those established by the Great Western Railway in conjunction with its staff, for last November he stated in the House of Commons that he was prepared to approve arrangements by a local authority with a housing association under Section 94 of the Housing Act, 1936, provided he was satisfied that the houses to be provided were of the kind most needed and would efficiently supplement the local authority's own housing programme.

In view of this statement, the G.W.R. board authorised the extension of existing estates and the formation by G.W.R. employees of new housing societies, but, while at Banbury and other places the local authorities have been helpful, unfortunately the results of the company's discussions with other local authorities seem likely to restrict its plans for housing employees at various parts of the system. At Plymouth, Ealing, and Hayes, for example, discussions were opened with the local authorities, and initially there seemed no reason to doubt that there would be the closest co-operation and that subsidies and consents governing houses provided by them would also apply to the 374 houses included in the G.W.R. schemes; but subsequent developments unfortunately belied this expectation.

At Plymouth, the company proposed to erect 160 houses on land to be purchased from the Corporation adjoining the G.W.R. Laira Estate. The price of the land and the re-imbursement in respect of roads and sewers was agreed with the Corporation, but it has now reconsidered the matter and decided not to dispose of the land or pay contributions in respect of any housing society's schemes. At Ealing, the Corporation approved plans for the development of a site owned by the company, but it has declined to recommend any financial assistance under the Housing Acts, and this has prevented the scheme from proceeding. Consideration of a request by the railway company and the housing society to re-examine the matter has been postponed until December.

The Hayes & Harlington Urban District Council has been pressed since December, 1944, for permission to proceed with the development of the company's Hayes estate, stopped by the war, but has now intimated that the land, although specifically acquired for houses, will now be required for public purposes. At Swansea, the Corporation is insisting on a 50-ft. main road being constructed by the company in connection with completion of the existing estate. As the present cost of this work would be prohibitive, the possibility of erecting a number of houses which would not affect directly the 50-ft. road is being examined.

These local authorities appear to find it difficult to appreciate that, by reason of the conditions of their employment, it is essential that railwaymen should receive preference in connection with the allocation of houses, but fortunately other local

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authorities have adopted a different attitude, and it is hoped that the negotiations which are now in progress may result in the commencement of housing projects in several localities.

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Road-Rail Licence Agreements

REFERENCE was made in our issue of May 13 to the voluntary scheme agreed by the Road Haulage Association and the railway companies for facilitating procedure in connection with future applications for "A" and "B" goods road transport licences. Briefly, the arrangements provided for the establishment of joint regional licensing sub-committees, operating under the general supervision of the Road & Rail Central Conference, which would consider applications for such licences voluntarily brought before them by hauliers with a view to reaching agreements between the road and rail interests, which would obviate the railways lodging objections with the appropriate licensing authorities.

The scheme could not, and certainly was not designed to, fetter the full discretion of the licensing authorities in any way, but obviously its successful operation depended upon the manner in which the proceedings of the joint regional licensing sub-committees worked. The obvious dangers were the risk that anything in the nature of pressure might be exerted by the sub-committees, and that the licensing authorities might feel that their authority was being undermined.

Unfortunately, the Yorkshire Licensing Authority and the Eastern Area Authority have found it necessary to criticise the proceedings of the local sub-committees. In the latter case the Authority has issued a statement indicating that he cannot recognise any agreements made by an applicant, and the sub-committee can consider only representations by an applicant and those who have the right to be heard and have lodged valid objections. He insists, therefore, that applicants shall open their case on the basis of their original applications, and satisfy him that any amendment proposed has not been caused by undue pressure. It was confirmed that no pressure had, in fact, been brought to bear on the applicants to amend their application in the two cases concerned, and both applications were granted as amended. We understand that proceedings before the Authority in these cases were much more expeditious than they would have been had the railway company concerned appeared as an objector.

It would be unfortunate if further criticism by licensing authorities compelled the abandonment of the scheme, which is advantageous to all parties concerned, but it seems clear that some slight amendments in the existing procedure will be necessary, to prevent any suggestion of compulsion on applicants. One way of overcoming this might be for the application to the Licensing Authority to be presented in its original form, and for the railway concerned to announce that the objection it had lodged had been withdrawn following an agreement reached with the applicant. If the applicant then satisfied the Authority that, as a result of friendly discussion, he had agreed voluntarily to modify his original application in the manner stated, the Authority could proceed to determine the matter on the basis of the facts, and there could be no suggestion of any attempt to undermine his authority.

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The L.N.E.R. Main-Line Resignalling

WE are now able to publish elsewhere in this issue details of the important resignalling work, completed just as the war broke out, at Northallerton, Darlington, and intermediately, which, added to the section between Northallerton and Skelton Junction, York, makes up the longest continuous stretch of colour-light signalling in the British Isles—42½ miles. Through traffic on the 14 miles from Northallerton to Darlington is now controlled by three signal boxes; there is only one, Eryholme Junction, between the two large interlockings at each end, and the first installation in this country of approach-lighted automatic colour-light signals is thereby superseded. Although the new arrangement includes two stretches of automatic signalling, traffic is always under the observation of one or other of the signal boxes; the illuminated diagrams include the length of automatic territory immediately in rear of each signal box. The advantages of such an arrangement in regulating the traffic can be readily appreciated from a study of the junction layout at Northallerton, where southbound trains are first indicated on the illuminated diagram when passing Cowton Station, nearly eight miles to the north.

Apart from the use of different systems of control, the signalling is uniform, that is as far as the aspects displayed are concerned. All the main signals relating to the through fast lines are of the four indication type, although some interesting special arrangements have been found necessary in the neighbourhood of Darlington, through which area speeds up to 70 m.p.h. are, in normal times, permitted to non-stopping trains. The shortness of the distance between certain signals necessitates a system of restrictive aspects, so that there shall always be adequate braking distance between the first signal displaying double yellow and the signal at which a stop must be made. The control at Darlington is not entirely centralised. The former signal box at Croft, no longer a block post as far as main-line trains are concerned, is retained in a modified form to operate a number of local points and signals. This appears to us to be a good arrangement, enabling the signalmen in the new Darlington south box to concentrate upon through traffic, while at the same time retaining control of all points that affect the main line.

The technical details of the interlockings at Northallerton and Darlington differ considerably. At the former there is a control panel and route-relay interlocking, whereas at Darlington there is an all-electric locking frame, and individual working of all points and signals. There is enough similarity between the size of the installations and the class of traffic handled to enable an instructive comparison to be made between the two systems of working. Some considerable time must necessarily elapse before sufficient data is available to make any such comparison truly reliable, on the score of operating costs, maintenance, and other factors, such as general performance, that cannot be expressed in mere figures. It is to be hoped, however, that in due course the L.N.E.R. will see its way to making public the results of its experience. The excellence of the signal box layout in both cases will be apparent from the photographs accompanying the article, and the boxes themselves, while striking quite a fresh note in the distinctive railway architecture of the North-Eastern area of the L.N.E.R., handsomely set off a notable example of modern power signalling. Our description, prepared in the early months of the war, has had to be held in abeyance until now.

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Conversion of Locomotives from Coal to Oil Burning

THE Ministry of Fuel & Power announced recently that it was encouraging industrialists to convert their coal burning plants to oil burning in order to ease the difficult position for coal which can be foreseen this winter. If the changeover is to be of much assistance, clearly it will have to be completed by the end of the year, and several important firms already are busily engaged on conversion work with this date in view. Seeing that the G.W.R. already has altered a number of locomotives from coal to oil burning which are operating successfully, including one engine on main-line passenger services, it would not be surprising if the railways were pressed to alter additional engines. In that event, the experience of the G.W.R. will prove invaluable.

While, to the layman, the conversion of engines from coal to oil would seem a comparatively simple job, in fact, various considerations arise which may have a material effect on the speed with which oil-burning engines can be put into service. From a mechanical point of view the conversion from coal to oil burning is not very difficult, although it involves using about five tons of steel, but because of the wide variations in locomotive designs and dimensions, complete standardisation of many of the parts required is impossible. In this connection it is relevant to point out that the railways have still to overtake the heavy arrears of maintenance of locomotives caused by the war, and the transfer of men from engine construction or repair to conversion work therefore, is bound to have an adverse effect on the engine position.

It does not necessarily follow that an oil engine can be put into service as soon as it is converted. The governing factor

is the arrangement of oil supplies at those depots where such engines are likely to require to be re-fuelled. This involves the provision of storage tanks and pumps at a number of places and the construction of rail tank vehicles for carrying the oil from the ports to the storage tanks. Generally, the space at most locomotive depots is fairly limited, and the positioning of storage tanks, capable of meeting the maximum requirements at any period of the day, in a position where rail tanks can obtain access readily to discharge their oil, and where engines can obtain easy access for re-fuelling purposes, doubtless would present many local problems.

It would be necessary, we assume, for the railways to maintain an adequate reserve equivalent to several days' supply of oil, and the size of the storage tanks will therefore be dependent on the number of engines stationed at the depot and the number to be fuelled at the peak period. Thus, presumably, the rostering of the engines for work could vitally affect the size of the storage plant. It might be possible to have storage tanks of standard dimensions, but, if so, some depots would require more units than others, and this might involve the provision of additional pumping equipment, the supply of which, we imagine, might be somewhat difficult. The number of rail tanks required to feed each depot would be governed by local conditions, but should a large number of engines be converted, the construction of the rail tanks will be of vital importance and their speedy turn-round essential.

There are, of course, certain advantages from an operating point of view associated with the use of oil burning engines. Schedules would therefore have to be planned very carefully to ensure that the greatest possible advantage is taken of these, especially as, quite apart from the capital cost involved in the conversion of the engines, the provision of the storage tanks and pumps, and the construction of the rail tanks, the cost of burning oil fuel is very substantially in excess of burning coal —even at the present-day low quality of a certain amount of tonnage and high price. Although the motive of the Ministry of Fuel & Power is understandable, we must confess to a feeling of considerable concern that, if a large number of engines have to be altered, the whole of them may be brought to a stand at any time by a strike on the other side of the world, although they are operating over beds of millions of tons of the finest coal in the world which we appear to be unable or unwilling to dig out.

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The American Public and the Railways

EVERY year, on behalf of the Association of American Railroads, a survey of public opinion concerning the railways is made by the Opinion Research Corporation of Princeton, N.J. The methods used are thoroughly representative of a cross-section of the American public of all classes and occupations; and by numerous tests the results have been proved reliable. The replies obtained in the latest survey are of particular interest to Great Britain, as they have been given in much the same conditions, resulting from the stress of war, of overcrowded trains, unpunctuality, and a general lowering of the travel standards to which the public is accustomed in times of peace, as those of this country.

The latest American survey, in which 2,942 persons replied to a detailed questionnaire, shows that the railways reached their peak in popular esteem in the year 1944, and that since then they have slipped back a little, because of the increased crowding of the trains and the greater difficulty in handling the enormous volume of freight thrown on to the railways in 1945. But with all its goodwill towards the railways, the American people as a whole, in the judgment of the *Railway Age*, has not sufficient information to enable it "to translate its good intentions into a political framework favourable to the successful functioning of the railroads as a private enterprise."

In 1941, half the people questioned thought that the Government ought to take over the railways in the event of war; by 1944 the proportion of those favouring Government operation had fallen to 15 per cent. In 1945 it rose again to 24 per cent. (this was before the defeat of Japan), but Government control was desired only until the end of the war. The proportion of voters desiring railway nationalisation in the U.S.A. was no greater than 6 per cent. Whereas in 1941, only 56 per cent. of those questioned considered that the railways had prepared adequately for the war, by 1944 no less than 94 per cent. thought that they had done a good job during the war, as compared with 88 per cent. in 1943 and 89 per cent. in 1945—a steady volume of appreciation. In the year 1941, although the majority of the respondents thought the railways to be the most important of all transport agencies in wartime, the 68 per cent. so voting was in striking contrast to the 88 per cent. which by 1945 had become convinced by what the railways had actually done in war conditions. In the same year the advocates of road haulage as the most important agency of war transport had shrunk from 22 to 9 per cent., and of inland water transport from 9 to 3 per cent.

Notwithstanding this support of the railways, the responses in other directions showed the average United States citizen as knowing little or nothing of the conditions in which the railways of that country have to meet their competitors. Some 62 per cent. of those expressing an opinion favoured a "fair basis of competition" between railways, roads, waterways, and the air; yet the great majority supported the idea of Government assistance—at the taxpayer's expense—in the provision of highways, waterways, and airports, and a smaller majority opposed any such assistance in subsidising new railway construction.

An astonishing feature of the voting was that 54 per cent. believed the railways themselves to have received from the Government during the war more such help than any of their competitors. The reason offered as to why no national money ought to be expended in assistance to new railway construction was that the railways "are making plenty of money now"; 91 per cent. believed the railways to be operating at a profit and 15 per cent. at an excessive profit. In brief, the public wished the railways well, but was not prepared to do anything about their competitive handicaps because it did not realise that any such handicaps existed.

As to the future, three-fifths of the respondents expected the railways to carry the bulk of the passenger business after the war, as compared with one-fifth each favouring the airlines and the coach services on the roads. The best chance of hauling freight at a profit after the war was accorded by 58 per cent. to the railways, with 27 per cent. voting for road haulage, and only 8 and 7 per cent. respectively for the air services and inland waterways. As to preferences, however, 58 per cent. expressed themselves as preferring to travel by air rather than by train; of voters under 30 years of age, the proportion was as high as 64 per cent.

A restraining influence, so far as concerns air transport, was that the railways were considered by 53 per cent. of the voters as being a safer mode of travel. Nevertheless, there were 35 per cent. among the respondents who considered the railways to be less safe than before the war; 21 per cent. regarded them as more so. The reasons given by the 35 per cent. for their adverse vote were chiefly "worn-out equipment" and "inexperienced help." In this connection 59 per cent. considered that modernised equipment would be a greater inducement to them to travel by rail, whereas, curiously enough, only 15 per cent. called for lower fares, and no more than 11 per cent. for higher speeds, as being desirable.

Little tendency was shown to blame the railways for delay in handling freight in wartime; responsibility for such delay, in the public mind, was rightly placed on inadequate manpower and lack of equipment. Up to 1945, unsatisfactory passenger service had been laid at the door of war conditions, but there was distinct evidence in the 1945 voting that public tolerance had reached its peak in 1944, and was now on the decline. Whereas in 1942 only 30 per cent. of the voters had heard complaints of railway service from their friends, by 1945 the figure was 73 per cent.; and criticism of railway employees was increasing slowly but steadily from 8 per cent. of the voters in 1942 to 14 per cent. in 1945. Despite the agitation in the United States during 1945 over freight rates, only one voter in four knew anything of such criticism; but the proportion of those regarding freight rates as too high was 10 per cent. in the east, 20 per cent. in the west, and 50 per cent. in the south. Yet the great majority of the public expected the railways to do well with freight after the war, because of their "greater capacity," "efficient organisation," and "lower rates," as compared with their competitors. The principal advantages of the competitors were regarded as being the door-to-door service offered by the road hauliers, and the greater speed of air transport.

XUM

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

From Waterloo Bridge to the Netherlands Railways

Top Flat, 27, Laburnham Road,
Maidenhead, Berks. August 10

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Your recent note and Major Keith's letter regarding the old temporary Waterloo Bridge steelwork (in the July 26 and August 9 issues) are most interesting. Major Keith mentions that when these spans are used for single-line railway bridges, the main girders are brought closer together by reducing the length of cross-girders and bracings.

As far as I can remember, seven spans of 140 ft. and one span of 280 ft. were so modified, and the greater proportion of this work was carried out by Sappers of the Railway Bridging Company, R.E., and the Railway Construction Companies, R.E. As much of the existing material as possible was re-used and the work was carried out at the Transportation Training Centre, R.E., Longmoor, to the design of Lt.-Colonel W. T. Everall, O.B.E., M.Inst.C.E.

Your faithfully,

D. J. TONKS,
lately Major, R.E. Transportation Directorate H.Q., 21 Army Group

Locomotive Liveries

4, The Close, Wainwright Road,
Altrincham. August 10

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I would like to endorse heartily the remarks made by Mr. Overend in his letter regarding the livery of the L.M.S.R. which appeared in your issue of August 9. It has been evident for years prior to the 1939-45 war period that the L.M.S.R. has been woefully ignorant of the publicity value of clean locomotives. I spent my early boyhood in West Cumberland, and well remember the spotless condition of the old Furness Railway engines and also the filthy condition into which they lapsed soon after 1923, and in which they remained ever after.

I have many friends amongst locomotive drivers and firemen, and all without exception dislike having to handle filthy, grimy machines. The general condition of external dirtiness of both engines and coaches is a very poor advertisement for railway travel. It is useless to plead war conditions as the cause, for my own experience proves that things were little better (apart from certain "crack" express units) between 1923 and 1939.

In view of its general policy regarding locomotive cleanliness, it seems strange to me that the L.M.S.R. has chosen a black livery, for the only time that such a colour looks anything like decent is when it is kept in immaculate condition. In the meantime I would like to endorse Mr. Overend's words of congratulation to the L.N.E.R. on its new colour scheme, which, like its recent questionnaire on coaching stock construction, proves that the company is out to make railway travel as attractive as possible to the general public.

Yours faithfully,

W.MCGOWAN GRADON

7, Birch Grove,
Harrogate. August 11

TO THE EDITOR OF THE RAILWAY GAZETTE

Sir,—The reasons for the entirely opposite decisions regarding locomotive colour schemes which have been announced recently, would make interesting reading.

From a practical standpoint the L.M.S.R. decision appears to be the most sensible, but one cannot deny that the choice of the L.N.E.R. to standardise green for the majority of classes would be a tonic to both railway staff and public alike, providing that a reasonable standard of cleanliness is maintained; this latter point will, I fear, prove its undoing.

During the war years the shortage of staff and materials was held responsible to a large extent for the shortcomings in the company's policy both as regards cleaning and general maintenance, whereas in this area of the L.N.E.R. alone the rot had set in years before the outbreak of war, and I fail to see how the company intends to keep its locomotives in showroom condition without large staffs of cleaners, which, incidentally, they are having difficulty in recruiting at the moment to fill firing vacancies. When ample cleaning staffs were available before the war, they often were employed on any duties around the locomotive depots except that of their calling, this state of affairs leading to the gradual decline of cleanliness which made a sure foundation for the chaos of war.

Therefore, bearing in mind that the company's green is particularly prone to showing dirt, that it requires a certain amount of skill in cleaning to produce a smart finish, and also that the greatest producer of grime is the locomotive itself, it leads one to believe that the company intends to indulge in an expensive luxury.

Have brighter colours by all means, for no-one wishes a continuance of the degrading conditions prevailing at the moment. But let us hope that with the dawning of this new era will come a definite policy towards both cleaning and maintenance which will be rigidly pursued.

Yours faithfully,

J. SLEE

Clarifying Statistics

Hampstead. August 13

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—An editorial in your issue of August 9 proposes that the *Monthly Digest of Statistics* should furnish in future a complete picture of railway operation. That would be an ideal state of affairs, but one doubts whether our statistical apparatus is equal to the task. There should, however, be little difficulty in giving for 1945, and in due course for 1946, most of the information which was contained in the *Annual Statistical Returns* published before the war. The Summary Table, issued by the Ministry of Transport in July last, purports to "complete the record of the more important statistical information relating to the operations of the Railways during the period of the war." To show how wide this statement is of the mark, we need only take the item of docks, harbours, and wharves. The summary quotes one solitary figure for the length of quay of all railway-owned shipping places. In the annual returns the figures which really matter were set out separately for each company thus:—

1.—Dock capital.
2.—Dock receipts, classified under such headings as dues on ships and graving dock charges.
3.—Dock expenditure, divided under heads such as superintendence, maintenance, dredging, and operating.
4.—Net dock receipts.
5.—Imports and exports, divided into 10 or 11 commodity classes.

The whole of these particulars will be on record and should be available to the public at a time when the decline in traffic at many ports is causing grave concern. It is not sufficient to be told that coal and coke shipments, which represented over 90 per cent. of the total exports at railway docks before the war, have decreased lamentably. The country is entitled to have the whole story, so that all who are interested in transport developments can see for themselves how the railway dock undertakings stand.

Yours faithfully,

STATISTICIAN

The Lines of Communication, Assam

Bengal Assam Railway,
3, Koilaghat Street, Calcutta,
Bengal (India). August 10

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—While all those who were engaged on the Assam lines of communication will agree with Lt.-Colonel Woodbridge that it is very gratifying to see that a certain amount of publicity has been given to it, at the same time the contents of his letter of February 18, published on page 314 of your issue of March 22, are in turn rather misleading in some respects.

Throughout this letter no mention whatever is made of the construction organisation of the Bengal Assam Railway, and while it is correct that all construction was under the control of the Assistant Director of Transportation, Assam, this organisation actually executed the greater part of the doubling of both broad-gauge and metre-gauge sections. Further, no reference has been made to the fact that, prior to the arrival of R.E. and I.E. units, a number of new crossing stations, yards, additional loops, and feeder lines to aerodromes were built by the Bengal Assam Railway Open Line organisation, which was the only agency by which such work could have been carried out at that time.

The construction organisation consisted of a civilian administration and semi-military executive, the majority of the staff of the latter being members of the Defence of India Corps.

The sanction for the original programme of doubling the line was received by the Railway Administration in September, 1943, but it was soon found that the shortage of materials

and the restriction on movement imposed by the very heavy military traffic would make it impossible to complete the various stages of the work by the original target dates. After the United States Military Railway Service had taken over the operation of about 750 miles of the metre-gauge section (including two short branch lines) in March, 1944, the whole position was reviewed and a modified programme adopted involving the laying of 300 miles of track, including 58 miles of broad-gauge and 175 miles of metre-gauge double line, 365 million cu. ft. of earthwork, 60 major bridges (spans totalling 100 ft. or more), and minor waterways amounting to 5,000 ft. To carry out this work the organisation under the Chief Engineer, Construction, consisted of 72 engineering officers, 9 stores officers, 7 accounts, establishment and traffic officers, 900 subordinate supervisory staff, and 7,000 inferior staff.

In executing this work, very valuable assistance was given by I.E. units, first in linking, later also in bridge erection, quarrying, and supervision of Pioneer Units. In spite of all the difficulties inseparable from the very rapid change to full war conditions, this project was completed in 15 months.

Lt.-Colonel Woodbridge has mentioned that "in 1942, after the disastrous evacuation from Burma, when some Bengal Assam Railway employees began to desert their posts, Transportation troops of the Indian Engineers were sent up to take over the operation of Manipur Road Station." This statement is most unjust to the railway staff in the threatened area, and the great majority of those who did panic after the first bombing of Imphal in May, 1942, were rallied by the General Manager and Chief Transportation Manager personally, and then returned to their posts, only a very few not resuming duty. It would seem from reading Lt.-Colonel Woodbridge's letter that this alleged desertion of their posts by the railway staff was the reason for sending Transportation Units into the threatened area, whereas it is well known that the real reason was that the railway had insufficient staff to deal with the greatly increased traffic being carried. At the same time, the presence of military units undoubtedly had a steadying influence on the railway staff.

Finally, it should be mentioned that the entire responsibility for the maintenance of track and structures rested with the Bengal Assam Railway Open Line staff, under the general supervision of the United States Military Railway Service on that portion of the metre-gauge main line which they were operating. The maintenance of the track, under the intensive traffic, proved to be a difficult task with the very limited resources of labour and materials, coupled with a dearth of subordinate supervising staff, and the responsibility of the Open Line staff was considerably increased by their having to take over from the construction organisation the maintenance of 225 miles of the new double line, shortly after the opening of each section for traffic. The greater part of the new double line was laid on unconsolidated bank, and when lifting and packing the track following subsidence after heavy rain proved beyond the capacity of the maintenance forces, valuable assistance was rendered by I.E. units in restoring it. It was eminently satisfactory that there was hardly a case in which the double line had to be closed down for any length of time for heavy repairs.

Yours faithfully,

H. M. READ
Deputy General Manager

Advertised Connections

6, Armitage Road,
Birkby, Huddersfield. August 12

TO THE EDITOR OF THE RAILWAY GAZETTE

Sir,—It would be interesting to know the degree of reliability that may be attached to trains shown as connecting in official timetables. For example, Table 146 of the current L.M.S.R. timetable shows a departure of 3.50 p.m. from Birmingham (New Street) for Huddersfield, arriving at the latter place at 8.30 p.m. This journey depends on two connections, the first of which is at Stoke, where the train from Birmingham is due to arrive at 5.45 p.m. and connects with a London-Manchester train due to depart from Stoke at 6.3 p.m.

On Thursday, August 8, due to loss of time on the already generous schedule between Birmingham and Stoke, this train arrived at Stoke at 6.5 p.m., missing by two minutes the Manchester train with which it is advertised to connect. Resulting from this, passengers from Birmingham to Manchester arrived at Manchester at 9.5 p.m., that is, nearly two hours later than shown in the timetable, while passengers for Huddersfield ultimately travelled on a Manchester-Huddersfield train, the nominal arrival time of which is 11.21. The 100-mile journey from Birmingham, therefore, occupied 7½ hr. instead of 4¾ hr., and the average speed dropped from 21 m.p.h. to 13½ m.p.h. for the journey.

While such incidents were not uncommon during the war, and are now fairly rare, it is to be hoped that an endeavour will be made in future to ensure that all advertised connections are actually made, since loss of confidence by the public in such matters may result ultimately in loss of revenue.

Yours faithfully,

R. HOWARD

Publications Received

The Early History of the Railway Locomotive, 1804-1879. By R. W. Kidner. Chislehurst, Kent: The Oakwood Press, 30, White Horse Hill. 7¼ in × 4¾ in. 38 pp. + viii pp. plates. Price 5s. 6d.—In a small compass the author has managed to present an interesting and informative potted history of the first seventy-five years of the locomotive. Besides the excellent plates, there are numerous sketches interspersed in the text, many of which depict little known and unorthodox designs. The period from 1880 to the present day will be covered by a succeeding booklet. The author already has traced in the first of two booklets the early history of the motorcar, and all will form part of a short history in booklet form of mechanical traction and travel.

The Railway Handbook, 1946-1947. London: The Railway Publishing Co. Ltd., 33, Tothill Street, Westminster, S.W.1. 8½ in. × 5½ in. 120 pp. Price 5s.—With the return to more normal conditions, the present edition of *The Railway Handbook* is able to include various statistics that have not been available during the past seven years. Principal among these is the summary table of statistical returns of the railways of Great Britain, which is presented in a new form to show comparative figures for every year from 1938 to 1945 inclusive. The census of railway employees is another feature which was not issued during the war years. There are summaries, classified under companies, and also under periods, of casualties on British railways due to enemy action, and of damage done to British railways by enemy action; these tables are included as a matter of record, and will not be repeated in subsequent editions. Another new feature is a table showing the total length, capital, passengers conveyed, receipts, and working expenses of railways in the United Kingdom for every year from 1842 to 1894. A bibliography of railway literature, revised to July, 1946, is a further innovation.

Five Decades of Commercial Road Transport with Inferences about its Future. Reprint of the first Henry Spurrier Memorial Lecture delivered before the Institute of Transport on December 10, 1945, by Mr. E. S. Shrapnell-Smith, C.B.E., M.Inst.T. Price 2s. 6d.—The late Henry Spurrier, who helped to found Leyland Motors Limited, and was its Managing Director at the time of his death in 1942, devoted his life to the advancement of road transport. His friends subscribed to a memorial fund for the endowment of scholarships and grants and memorial lectures, of which this is the first. Part I traces the course of road transport from the formation in December, 1895, of the Self-Propelled Traffic Association, through the early trials of commercial road vehicles, to their extended use. The unrestricted competition of the 'twenties which forced the railways to seek general road powers, granted in 1928, is referred to, and this part of the lecture closes with an account of the increasing parliamentary control, exercised from 1936 onwards, which culminated in emergency war legislation. In the second part the prospects of road haulage are discussed, particularly in the light of state ownership.

The Canada Year Book, 1945. Ottawa: Dominion Bureau of Statistics, Department of Trade of Commerce. 9 in. × 6 in. × 2¼ in. 1,200 pp. Numerous maps and diagrams. Price $2.00.—The Canada Year Book is an encyclopedia of the resources, institutions, and social and economic conditions of the Dominion. In addition to the statistical and other data which form the basis of the book, each edition contains a number of special articles on noteworthy aspects of the period dealt with. The present volume includes a review of the wartime activities and accomplishments of the Canadian railways, prefacing comparative figures of mileage, finances, and operation of steam and electric systems for 1943 and several preceding years. Mainline railways and their connections with the United States are shown on a folding map of the Dominion. Gross earnings and operating expenses of steam railways for the years 1914 to 1943 are presented in diagrammatic form, supplemented by a table of earnings and expenses from 1936 to 1943, showing also operating ratios and earnings and expenses per mile of line and per revenue train-mile.

The Scrap Heap

"UNLUCKY FOR THE COO"

A cow recently gave birth to a calf on the track of the 15-in. gauge Romney, Hythe & Dymchurch Railway. A train was held up while the driver and others moved the animals into a field and fetched the farmer.

* * *

THE DISAPPEARING R.T.O.

R.T.Os. have been withdrawn from 13 G.W.R. stations, and their territories covered by the ten remaining R.T.Os., whose areas have been enlarged. Those closed are Banbury, Bridgwater, Bath, Basingstoke, Bodmin, Didcot, Ludgershall, Marlborough, Newbury, Newton Abbot, Wellington, Weymouth, and Yeovil.

* * *

NAMED TRAINS IN THE U.S.A.—*(contd.)*

Below we publish a second selection of named trains in the U.S.A.:—

Passenger

Name	*Railway*	*Scheduled run*
Congressional	... Pennsylvania	... New York—Washington
Creole	... Illinois Central	... Chicago—St. Louis—New Orleans
De Witt Clinton	New York Central	Buffalo—New York
Diamond	... Illinois Central	... Chicago—St. Louis
El Capitan	... Atchison, Topeka & Santa Fe	Chicago—Los Angeles
Empire State Express	New York Central	New York—Buffalo—Detroit
Firefly	... St. Louis—San Francisco	Oklahoma City—Kansas City
Flying Yankee	... Boston & Maine : Maine Central	Boston—Bangor
George Washington	Pennsylvania : Chesapeake & Ohio : New York Central	New York—Washington—Cincinnati—Louisville—Chicago—St. Louis
Goldenrod	... Southern	... Columbus—Mobile
Hawkeye	... Illinois Central	... Chicago—Sioux City
Hiawatha	... Chicago, Milwaukee, St. Paul & Pacific	Chicago—Minneapolis

Goods

Name	*Railway*	*Scheduled run*
Cornucopia	... Pennsylvania	... Buffalo—Philadelphia
Dairy	... Grand Trunk Western: C.N.R.: Central Vermont: Boston & Maine	Chicago—Boston
Dan Trot	... Chicago & North Western	Proviso—Ishpeming
Dividend	... Pennsylvania	... Buttonwood—Altoona
Excelsior	... Pennsylvania	... Buffalo—Crestline
Fabricade	... Southern	... Atlanta—Potomac Yard

* * *

HEAT CLOSES RAILWAY WORKSHOPS

For the first time on record the North-Western Railway Workshops at Moghalpura, India, had to be closed officially because of the unbearable heat. That was on June 28 and 29. On the first of those two days there were 47 cases of heat exhaustion and one man died. Apparently the trouble was a very high humidity combining with shade temperatures ranging between 107° F. and 115° F.

* * *

BEER—FOR A 1D. PLATFORM TICKET

Beer drinkers in Croydon bought penny platform tickets recently, then queued up for a drink at the refreshment buffets in the East and West Croydon Stations. For, while two-thirds of the "locals" were closed, there was plenty of beer in the buffets. Said a Southern Railway inspector:—

"We have big crowds three nights a week when most of the public houses are closed. Sometimes people fight to get into the refreshment rooms.—*From "The Daily Express."*

ALARM THAT NEEDS NO WINDING

A regular traveller on the Piccadilly Line of London Transport for thirty years draws attention to what he describes as a curious psychological experience which occurs frequently on his daily journeys between Finsbury Park and Leicester Square. Entering the train at Finsbury Park, he settles down to read his paper and pays no attention whatever to the passing stations. When at last he looks out to see where he is, it is always Caledonian Road. In whichever direction he travels he notices this same thing. It is as if some subconscious process of the mind acts as a personal alarm clock and gives warning that it is time to be on the alert. Is any other reader having this strange experience?

* * *

100 YEARS AGO

From THE RAILWAY TIMES, *August* 22, 1846

TUNNEL CONTRACT. — LONDON and NORTH-WESTERN RAILWAY.—Liverpool Terminus.—The Directors are prepared to receive Tenders for the Construction of a Railway Tunnel and Works, extending from the vicinity of the Waterloo Dock to Wavertree Lane, Edge Hill, including a Bridge to carry Wavertree-road over the Railway.

Plans and Specifications of the Works may be seen on and after Monday, the 10th of August, by application to Edward Wood, Esq., at the Company's Office, Edge Hill, where printed forms of Tender may be obtained; and no proposals can be accepted which are not made in the prescribed form.

Sealed Tenders are to be addressed to the Directors, and left at the Company's Office, Lime-street, Liverpool, on or before the 7th of September next.

By order,

HENRY BOOTH.

Railway Office, Lime-street, Liverpool, 31st July, 1846.

* * *

A HOUSE FLAG FOR THE NETHERLANDS RAILWAYS

Although many railways fly house flags on their vessels, we think there have been few instances of railway managements adopting a flag for general display. The Netherlands Railways decided that it would be appropriate to have a distinctive flag to be displayed on ceremonial and other occasions, and has adopted the design here

reproduced, a blue flag with the letters N.S. (Nederlandsche Spoorwegen) in white at the fly, with a white triangular field at the hoist bearing in red the winged wheel, the railway's symbol. The colours are those of the national flag of the Netherlands.

Mr. H. G. Tulp, Way & Works Department, designed the flag, which was flown first from the main offices in Utrecht and is carried on the motorcars attached to the General Management.

Back Talk Backfires!

We must never forget that a customer is free to express displeasure. But if we lose our tempers or talk back, the resulting ill will backfires not only on ourselves but on all our fellow railroaders. The wise plan is to be sympathetic and helpful. Anger has no comeback against such an attitude. If you can not remedy the trouble yourself, get the matter promptly before someone who can.

[From "Company Manners" issued by the New York Central System

WHY?

Why are long-distance trains now timed to take much longer on the journeys?

The curtailment of train services has necessitated one train performing the work of two or more trains, resulting in much heavier trains having to be hauled at reduced speeds, and more stops made at intermediate stations to cater for the needs of the public. At some of the intermediate stations the length of the trains requires pull up stopping to serve passengers in the rear-carriages. A start has been made to cut out stops on some long distance trains, and this process will be continued as circumstances permit.—*From "The L.M.S. Answers Your Questions."*

* * *

MIXED TRAFFIC ENGINE REQUIRED?

Ardwick East Goods Depot of the L.N.E.R. is rapidly assuming its pre-war position as a main outlet for Manchester export traffic through the Humber ports, Harwich, and the London Docks. A recent influx saw 94 bales and 34 cases of cotton goods for Burma and Denmark alongside 25 tons of wire fencing for Iceland. Four diesel engines arrived for Mombasa, East Africa, rubber belting was loaded for Denmark, and 13 grindstones, a 2-ton consignment made in Manchester, were brought in for Burma! Shortly before, 35 tons of arsenic had arrived in kegs for Hull.

* * *

In the old days—sadly tarnished by the erosion of the first German War and now almost totally obliterated by the devastation of the second—London was a city of pleasure. I suppose there are still young people who find it so today, though where in its shabby, paintless streets, its airless restaurants with austerity menus and impatient waiters, its non-stop buses and taxis, and its interminable preparatory-school taboos and restrictions they succeed in finding such pleasure, only the very young in heart (who will always somehow find jewels in dustbins) can guess. But I and my generation are no longer young in heart; two world wars and their consequences have been too much for us, and, like the old cars rattling and wheezing about the streets, the most we can hope to do is to keep going until a less-battered generation is ready to supplant us. The glittering manifestations of pleasure are beyond us. Even the Proms, now held in the sound-deadening Nirvana of the Albert Hall, are thronged with ghosts; while the spick-and-span London of our youth, with its gleaming polish and hurdy-gurdy gaiety, constantly rises before our glazed eyes to reproach us as we shuffle down a seedy-looking Pall Mall or dodge between the cars at Hyde Park Corner. Lord's and the Oval themselves are mines whose rich treasures for us have been exhausted.—*Arthur Bryant in "The Illustrated London News."*

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

CANADA

Six Months' Railway Earnings

Combined gross earnings of the Canadian Pacific and Canadian National Railways during the first half of this year totalled $325,608,000, a decrease of $42,989,000 or 11.7 per cent. compared with the record of $368,597,000 achieved in the first six months of 1945. The combined revenue, however, was still considerably above most pre-war years, including the 1929 peak of $254,319,000, and compared with $149,489,000 in the first half of 1939, showing an increase of more than $176,000,000 on the latter figure.

Canadian National gross earnings in the first six months of this year totalled $186,157,000, which was a decrease of $27,712,000 from the corresponding period of 1945, and compared with $86,682,000 in 1939 and the 1929 peak of $146,224,000. Canadian Pacific gross earnings for the six months totalled $139,451,000, according to figures compiled from the company's periodic returns, being a decrease of $15,277,000 compared with the first six months of 1945. In 1939 C.P.R. gross earnings for the period were $61,808,000, and the 1929 peak was $108,095,000.

UNITED STATES

Diesel Power for Southern Trains

The Southern Railway System recently took delivery of six new two-unit 4,000-h.p. diesel-electric locomotives, and intends to use them for diesel-haulage of former steam trains on the Washington—Atlanta and Cincinnati—Jacksonville main lines. Other motive power on order by the system, and still to be delivered, includes 24 6,000-h.p. diesel freight locomotives and a total of 14 1,000-h.p. diesel shunters.

Poppet Valves for N.Y.C. "Niagara" Locomotive

One of the 4-8-4 "Niagara" class high-speed locomotives now being delivered to the New York Central by the American Locomotive Company has been fitted with the Franklin system of steam distribution by poppet valves, and will be tested on the road in comparison with the standard piston-valve engines of the same class. This engine is the twenty-seventh of the Niagara class to be delivered to the N.Y.C.

Level Crossing Accidents

There were 4,100 accidents at level crossings in 1945, compared with 3,811 in 1944, resulting in the death of 1,903 persons and injuries to 4,446 others, as against 1,840 deaths and 4,216 injured in the preceding year. The number killed in level crossing accidents in 1945 accounted for 42·62 per cent. of the total number of fatalities in accidents resulting from train operation.

NEW SOUTH WALES

Operating Results for First Quarter

Total earnings from passengers, goods, and sale of electrical energy in the first quarter of 1946 were £7,734,653, a decrease of £38,526. The number of passengers increased by 1,550,663 to 66,038,599, but goods tonnage declined by 487,505 tons to 3,934,014 tons. Expenditure was £6,221,732, against £6,229,677, or £27,945 lower, and the operating ratio rose by 0·04 per cent. to 80·18 per cent. Receipts from the sale of electrical energy totalled £402,514, compared with £371,277 in the first quarter of 1945.

INDIA

Government Purchase of Company-Owned Railways

On April 1 last the Government of India purchased the broad-gauge Sialkot-Narowal Railway and Hoshiarpur-Doab Branch Railways, which it has worked and managed through the agency of the North-Western Railway. Both lines were built in 1914, the first-named by the North-Western Railway and the latter by the owning company. About a dozen lines owned by companies and by Indian States still remain within the territory of the North-Western Railway. The Sialkot-Narowal and Hoshiarpur-Doab Railways have route-mileages of 39 and 91.

BRAZIL

Leopoldina Railway Under Government Management

Accompanying the uncertain internal political situation of the last half of 1945, labour disputes, consequent upon demands for increased wages, were prevalent in all industries. Amongst them, notwithstanding a general increase of Cr. 250 granted in May last year, further demands were formulated by the staff of the Leopoldina Railway, which led to the case being submitted to the Government Arbitration Board at the beginning of this year. On the grounds that no further strain could be put on its already overtaxed resources, a conciliation proposal was not accepted by the Leopoldina Railway, and as a consequence a commission was set up by the Government to examine the accounts and books and give a final report.

Before the result of this examination was made known, a strike broke out at Alto da Serra, at midnight on May 18, and later spread to other parts of the railway. This led to the intervention of the Government on the following day, when, by a Decree-Law, Colonel José Machado Lopes was appointed to handle the management of the railway. The Decree-Law was couched in the following terms:—

Whereas the abnormal situation noted in some parts of the Leopoldina Railway, brought about by the strike and stoppage of work, results in the paralysis of transport essential to the community, and affects social and economic interests of the country; whereas the transport services of the Leopoldina Railway Co. Ltd. are indispensable to the supply of a great part of the population and that their stoppage increases the difficulties of the community and especially of the working classes; and whereas it behoves the Government to take steps to avoid any aggravation of the already high cost of living, as a measure of public convenience the intervention of the Government, to attend to the situation of emergency created is imperative, and the President of the Republic therefore decrees:—

Art. 1—The Federal Government is authorised to intervene in the Leopoldina Railway so long as the present abnormal labour situation prevails.

Art. 2—To give effect to this Decree-Law representatives will be appointed in accordance with instructions to be issued by the Minister of Labour.

Art. 3—The present Decree-Law comes into force on the date of its publication.

Colonel José Machado Lopes and two assistants, namely, Lt.-Colonels Antonio Bastos and Paulo Leite de Rezende, have taken over, for the time being, the posts of General Manager, Technical Assistant, and Commercial Assistant respectively.

FRANCE

Restoring the Rolling Stock Position

Great delay is experienced in the recovery of French rolling stock from Germany. Out of 3,700 French locomotives in Germany on January 1, 1945, the S.N.C.F., on May 1, 1946, had recovered 1,550; and out of 9,600 passenger coaches 2,700 had been received, but only 42,000 out of 275,000 wagons. Rolling stock orders being carried out in France during 1946 include 350 steam locomotives, 450 passenger coaches, 13,000 wagons, and three railcars. The table below shows the increase in French rolling stock since the liberation compared with pre-war:—

	Pre-war	September, 1944	December, 1945	April 30, 1946
Locomotives—				
On hand ...	15,600	10,700	13,000	12,900
In working order	13,600	2,900	8,700	9,500
Coaches—				
On hand ...	30,000	13,500	15,700	17,500
Out of order ...	3,400	5,500	4,400	4,800
Wagons—				
On hand ...	485,000	230,000	247,000	287,000
Out of order ...	44,000	72,000	34,000	41,000
Railcars—				
On hand ...	710	135	560	590
In working order	530	95	280	310

Passenger Service Developments

The S.N.C.F. recently made trial runs of a train between Paris and Brest at an average speed of 75 m.p.h. Experiments are being made with air-conditioned coaches having interiors specially insulated against noise. Sixty second class coaches with sleeping berths are under construction. It is also reported that the S.N.C.F. is planning for the near future fast services to Bordeaux, Strasbourg, Lyons, and Marseilles to be operated by trains made up of six very light coaches running on pneumatic tyres.

ITALY

Electrification Progress

According to a recent statement by the General Manager of the Italian State Railways, electrification of the double-track Venice-Padua-Milan main line, 165.9 miles long (267 km.), is nearing completion. The same applies to the double-track Milan-Turin main line, 95 miles long (153 km.), and of the double-track Padua-Bologna main line, 76.4 miles long (123 km.). At the same time, it was stated that the restoration of the main route connecting Northern with Southern Italy is progressing at such a pace that electric traction will be resumed between Milan and Reggio Calabria, a distance of 819.7 miles (1,320 km.) in September. Once the electric equipment and overhead conductors of the 196.2-mile Florence-Rome section have been restored, the light fast trains introduced on that route on July 1 will be accelerated, and journeys between Rome and Milan shortened. The trains referred to are first class only and run between Rome and Milan. They leave Rome daily at 8.40 a.m., and arrive at Florence and Milan at 2.30 p.m. and 8.35 p.m. respectively, the whole distance of 392½ miles (632 km.) being covered in 11 hr. 55 min. In the reverse direction the journey is timed to take 12 hr. 25 min. Departure from Milan is at 8.45 a.m., with arrivals at Florence at 2.10 p.m., and at Rome at 9.10 p.m. Between Rome and Florence the trains are at present diesel-operated.

Railway Planning in Copenhagen

Danish State Railways proposals for new connections and underground lines in the city

THE Danish State Railways have again taken up their plans for drastic improvements of the Copenhagen railway system. Particulars were given in a paper read recently by Mr. T. Engqvist, Manager of the Copenhagen District. Those acquainted with local conditions in the Danish capital will know that the unusual situation of the town, two-thirds of which are surrounded by the waters of the Øresund, has created traffic problems of some magnitude. A well-integrated and fairly modern system of tram, trolleybus, and bus routes, operated by the local authorities through the Tramways Directorate, is supplemented by the electrified suburban lines operated by the State Railways.

The Suburban System

The main stem of this suburban ("S-Bane") system is the so-called Boulevard Line, which runs parallel to the main-line railway, cutting through the centre of the town in a great arc from west to north. The central section of the Boulevard Line, between Copenhagen Central and Copenhagen East stations, consists of a four-track tunnel, the two eastern tracks of which are used by long-distance and medium-distance steam trains; the western tracks are electrified and carry the frequent "S-Bane" trains. The two northern extensions of the Boulevard Line are electrified as far as Klampenborg and Holte, respectively. Of the western extensions, the one to Ballerup is now being electrified, and plans for a second extension to Glostrup, parallel with the main line to Roskilde, are in an advanced stage of preparation.

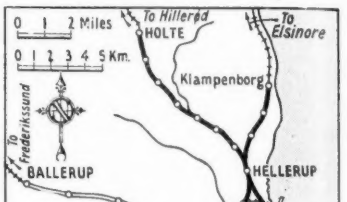
The Boulevard Line is supplemented by a loop line which links the northern key junction of Hellerup with the western junction of Valby. At the present time drivers of electric trains coming from Hellerup "change ends" at Vanløse and take their train to the dead-end terminus of Frederiksberg Station. This working (comparable with the running of certain Metropolitan Line trains to Watford *via* Rickmansworth on the London Transport system) is somewhat artificial, and has been regarded always as only a temporary arrangement.

It is, therefore, only natural that the plans of the Danish State Railways include proposals to convert the electrified loop line into a full circular Hellerup-Valby-Hellerup route, without reversal, and to divert the trains from Ballerup to the Frederiksberg line, which it is proposed to extend in tunnel into the centre of the town. A two-storey interchange station would be built at the right-angle intersection of the Circle Line and the Ballerup-Frederiksberg line.

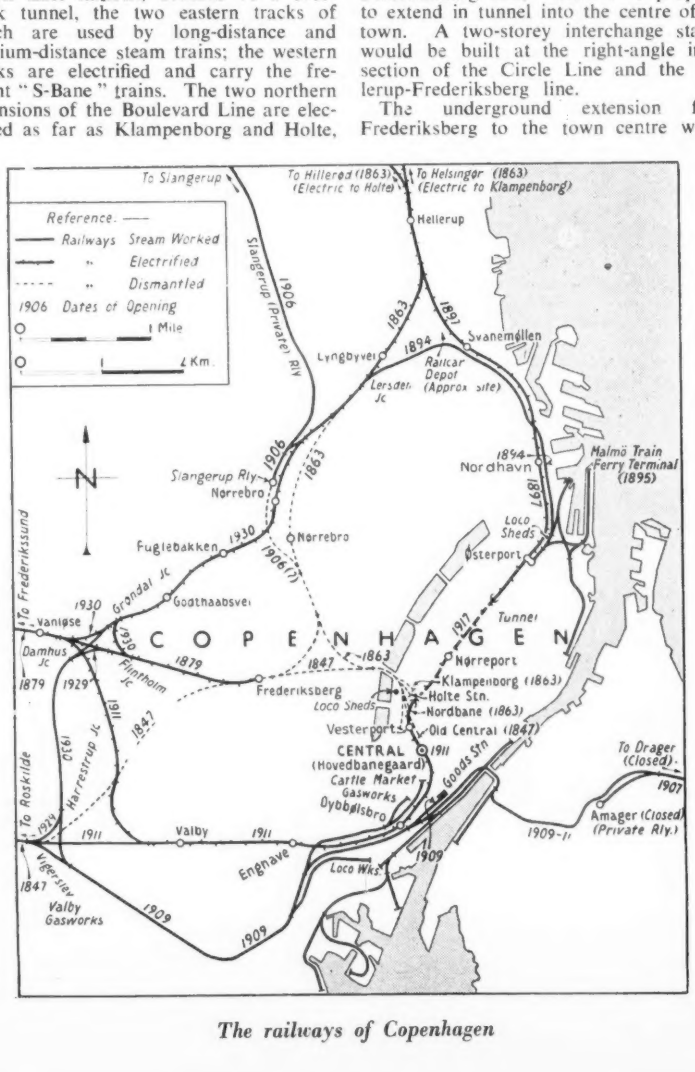
The underground extension from Frederiksberg to the town centre would follow the line of the busiest thoroughfares in the western part of Copenhagen. It would have its provisional terminus at Copenhagen Central Station, but would later be extended through the heart of the city and beyond to the residential districts in the north as far as Lyngbyvej. In its final form, this line would have the shape of a hairpin, open towards the north-west, intersecting twice with the Circle Line and the Boulevard Line.

A second underground line envisaged by the State Railways will cross the town in a more or less straight line from north-west to south-east, following the route of the busy Nørrebrogade and Amagerbrogade thoroughfares. This line would incorporate the existing Slangerup Railway, which now ends at Nørrebro, as we'l as a proposed spur line coming from new residential areas in the Gladsaxe district. This new underground line would pass beneath the harbour, and thus attract much of the traffic with the island of Amager, which at present is subject to frequent delays by the Langebro and Knippelsbro road swing bridges.

The two new underground lines would be built by the cut-and-cover method, with island-platform stations. The State Railways further envisage the construction of a new line branching off the Boulevard Line near the Central Station towards the south-west and serving the new residential and industrial areas along the coast of Køgebugt.



Copenhagen suburban area, showing the full extent of the electrified suburban system



The railways of Copenhagen

An Alternative Scheme

It has been suggested in criticism of the foregoing proposals that the extension of the Ballerup line *via* Frederiksberg to the town centre will not be properly balanced by a corresponding extension at the other end of the "hairpin." This will result in certain disadvantages from a traffic and operating point of view. For this reason it has been suggested in a paper read at the Danish Institute of Engineers in December, 1935, that the Slangerup Railway should be linked to the "hairpin" line at Lyngbyvej, rather than to the Nørrebro-Amager line. This arrangement would balance the traffic on the two sides of the hairpin and relieve the busier Nørrebro line.

Improving International Services on the Continent

Extensions of existing trains and new services to be introduced on October 7

WHEREAS improvements in railway connections between London and Switzerland have been made since early in July by the introduction of weekly tourist trains between Calais and Basle, other improvements are to take place as from October 7, when the winter timetable comes into operation.

The tourist trains mentioned above are intended specially for British week-end travellers; the arrival at Basle is at 4.24 a.m. on Saturdays, and departures from Basle for Calais take place on Mondays at 2.16 a.m. The first service ran on July 6.

Through carriages are conveyed to and from Interlaken and Lucerne. These carriages are not attached to any scheduled train, but are taken to their destinations independently. In the reverse direction, too, they form special trains as far as Olten, where they are attached to a scheduled train for Basle arriving at Basle 18 min. past midnight.

"Simplon-Orient Express"

The improvements in international railway connections which are to be introduced as from October 7 have been decided on by the International Railway Timetable Conference, which was held in Paris under the auspices of the Société Nationale des Chemins de fer Français between June 18 and 21, and met later in the same month at Brussels. The conference found no obstacle to extending the "Simplon-Orient Express," now operating daily between Paris, Venice, and Rome, to Belgrade, Sofia, and Istanbul, connecting there with the "Taurus Express" operating twice weekly. It was decided, therefore, that the "Simplon-Orient Express" should operate three times a week between Venice and Belgrade as from October 7.

In the absence of a delegate from the Bulgarian State Railways, it proved impossible to arrange the extension to Sofia and Istanbul, but the timetable of the train has been established in the meantime for the section between Belgrade and the Bulgarian frontier.

As from the same date, the "Simplon-Orient Express" departure from Paris will be put forward by about two hours, but will still maintain the connection with the "Golden Arrow" from London, which has through coaches to the Gare de Lyon arriving at 7.35 p.m.; the present departure of the "Simplon-Orient Express" is at 10.15 p.m. In the reverse direction, the "Simplon-Orient Express" will be timed to arrive at the Gare de Lyon about 1½ hr. later than the present time of 7.25 a.m., connecting with the "Golden Arrow" coaches which leave the Gare de Lyon at 10.14 a.m.

These adjustments of the "Simplon-Orient Express" will result in considerable savings of time both ways. Arrival at Rome will be advanced to 8.20 a.m. from 5.40 p.m. as at present, and at Venice the arrival will be at 10 p.m. instead of at 8.35 the next morning as at present. Northbound, the train will leave Rome at 9 p.m. (present time 2.10 p.m.) and Venice at 7.45 a.m. instead of at 4.20 the preceding afternoon as at present. In both directions the train will continue to convey a first and second class through carriage between Milan and Berne *via* Lötschberg.

The Calais-Thionville and Brussels-Thionville fast trains for Basle and Milan *via* the Gotthard will be adjusted to connect with the "Simplon-Orient Express" at Milan. The trains will convey through carriages between Calais and Milan, and between Brussels and Rome, in addition to sleeping cars between Brussels and Milan. On these routes, too, there will be a gain in the time of about 10½ hr. between Brussels and Rome, and approximately 12 hr. between Brussels and Venice. The railway administrations concerned are planning to add through carriages between Amsterdam and Basle *via* Visé and Luxembourg.

"Arlberg-Orient Express"

The "Arlberg-Orient Express" at present runs daily between Paris and Basle, and three times a week between Basle and Vienna. It has been decided to operate it daily between Basle and Vienna as from October 7, but the coaches will be attached to the "Orient Express" at Salzburg; the latter train runs from Paris to Salzburg *via* Strasbourg, Stuttgart, and Munich. In addition, as from October 7 the "Arlberg-Orient Express" will run three times a week beyond Vienna, bound for Budapest and Belgrade, with a portion for Bucharest. The present Linz-Prague portion is to be extended to Warsaw.

At Basle, the "Arlberg-Orient Express" is to connect with the fast trains from Calais and Brussels *via* Thionville. There will be through carriages between Paris and Vienna (daily) and on three weekdays between Paris and Prague, and Paris and Budapest. A connecting service between Vienna and Budapest is already in operation, having been introduced on August 1.

The connecting services between the "Arlberg-Orient Express" and Berne *via* Belfort and Delle will be adjusted appropriately.

France and Belgium to Switzerland

The present night services between Paris, Vallorbe, and Lausanne are to be extended from Lausanne to Milan *via* the Simplon. This will involve the extension of the existing Lausanne-Brigue fast trans to Domodossola, and the introduction of two new connecting trains on the Italian section.

The fast train leaving Brussels at 12.15 a.m. and arriving at Basle at 4 p.m. will have its departure advanced by 1½ hr. and will, in addition, be accelerated in order to arrive at Basle at 12.56 p.m. In the northbound direction, Basle will be left at 3 p.m. instead of at 1.15 p.m. as at present. The arrival at Brussels will remain unchanged at 7 a.m.

For the winter season, as from December 16, a daily express train is to run between Calais and Basle *via* Laon and Chaumont, conveying first and second class carriages and sleeping cars between Calais and Coire for tourists bound for the Engadine. In addition, a portion will run between Belfort, Delle, Berne, and Interlaken, comprising first and second class carriages and sleeping cars between Calais and Interlaken.

"Nord Express"

As from October 7 the "Nord Express" will be accelerated to reduce the present journey time between Paris and Stockholm of 55 hr. to 42 hr. In addition, the train is to run daily, and will convey sleeping cars between Ostend and Copenhagen; sleeping cars will run twice weekly between Amsterdam and Copenhagen.

From the same date the "Nord Express" will convey three times a week between Stockholm and Cologne (*via* Copenhagen and Hanover) a sleeping car, a first and second class carriage, and a luggage van for Basle. These vehicles will be attached to existing trains between Cologne and Basle *via* Strasbourg. The journey between Stockholm and Basle by this route will take 44 hr.

ROAD HAULAGE ANTI-NATIONALISATION FILM.—A film sponsored by the Road Haulage Association, putting the case for road transport under private enterprise, was exhibited privately in London last week, and will be shown 3,000 times in the next few months in halls booked by the Association in all parts of the country. The programme, which includes several supporting films, takes one hour, the main film lasting 25 minues, and at the end of each performance members of the public will have an opportunity of signing a petition against nationalisation. The film opens in a works canteen, where a group of lorry drivers are discussing among themselves the implications of the threat of nationalisation to their industry, and, basing their arguments on a sound knowledge of their own business, come to the conclusion that it would not be a practical proposition for the Government to take over the management of thousands of road haulage firms as one vast concern. This point is brought out clearly in the body of the film, in which we see the industry at work delivering in bulk essential supplies such as milk, meat, vegetables, petrol, etc., the successful execution of which calls for organisation, punctuality, and a specialised knowledge of the needs of individual consumers acquired only after many years of experience, which leave no scope for the delays inevitably associated with red tape and the filling up of innumerable forms.

AGENTS FOR DUALLOYS LIMITED.—The following agents have been appointed by Dualloys Limited:—Asia & Overseas (India) Limited, P.O. Box 2479, Calcutta, India; Building & Engineering Supply Co. Ltd., 13, Malika Farida Street, Cairo, Egypt; Corporation Commercial Sud-americana S.A., Ocona 170-174, Lima, Peru; Mr. Nedjib M. Kamoo, Al Rashid Street, Baghdad, Iraq; Perlender & Cia., Carlos Pellegrini 1250, Buenos Aires, Argentina.

TUNGSTEN AND MOLYBDENUM ORES.—Government purchase of tungsten and molybdenum ores and concentrates, with the exception of small outstanding commitments, has ceased, and it has been decided to return to private trading in these materials. The arrangements for dealing with residual Government stocks are under consideration, but purchase and import on private account may now be resumed subject to import licence. Applications for import licences should be made on the usual form, which should be forwarded to the Iron & Steel Control, Ministry of Supply, Artillery Mansions, 75, Victoria Street, London, S.W.1, for transmission to the Import Licensing Deparment of the Board of Trade. For the present, the Ministry will sell material for current requirements.

Auto-Pneumatic Indexing Drilling Jig

New device for rapid drilling of contactor tips at the Acton Works of the London Passenger Transport Board

THE time taken in locating and clamping small components in drilling jigs, and in removing them after completing the drilling operation, is often quite out of proportion to the time spent in carrying out the operation itself. With this in mind, Mr. Cecil E. Bench, Section Controller in the Machine Shop and Tool Room of the London Transport Railway Overhaul Works at Acton, has designed a pneumatic jig to facilitate drilling the fixing hole in copper contactor tips.

Mechanism Described

Referring to Fig. 2, the contactor tip to be drilled is placed in the locating nest at the front of the jig *A*. The drilling machine feed lever is retracted to its highest position, causing the cam *B* (Fig. 1) to actuate valve *C* and allow air to be admitted to the back of the cylinder *D* (Fig. 2). This brings the pawl-slide *E* and pawl *F* to the start of the indexing position.

As the operator feeds the drill spindle down, the cam *B* (Fig. 1) on the feed disc leaves the valve operating lever *G* and allows spring *H* to return, thereby engaging the valve operating lever and so actuating valve *G*. This reverses the air flow to the front of cylinder *D* (Fig. 2), causing slide *E* on which the pawl *F* is pivoted to index the jig and bring the next tip into the correct drilling position.

To ensure the tip being indexed to the correct position, a latch-stop *I* (Fig. 2) engages in the slot *J* of the index plate. Cam *N*, on pawl-slide *E*, automatically actuates valve *K*, thus admitting air to cylinder *L*. This clamps the tip immediately it is indexed. The air-cylinder *M* is also controlled by valve *K*, thereby holding the latch-stop *I* in position against the pressure from the indexing pawl *F*. The cylinder *L* is released only when valve *K*

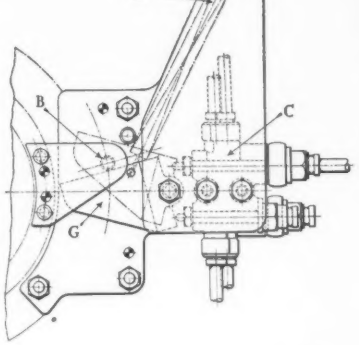
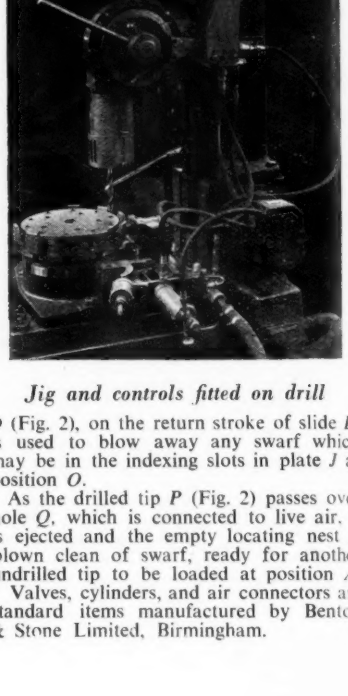


Fig. 1—Air-valve mechanism

is operated by the return of the pawl-slide cam *N* to the free position. The pawl-slide also disengages the latch-stop *I* on return, to be ready to index to the next position. The exhaust air from cylinder



Jig and controls fitted on drill

D (Fig. 2), on the return stroke of slide *E*, is used to blow away any swarf which may be in the indexing slots in plate *J* at position *O*.

As the drilled tip *P* (Fig. 2) passes over hole *Q*, which is connected to live air, it is ejected and the empty locating nest is blown clean of swarf, ready for another undrilled tip to be loaded at position *A*.

Valves, cylinders, and air connectors are standard items manufactured by Benton & Stone Limited, Birmingham.

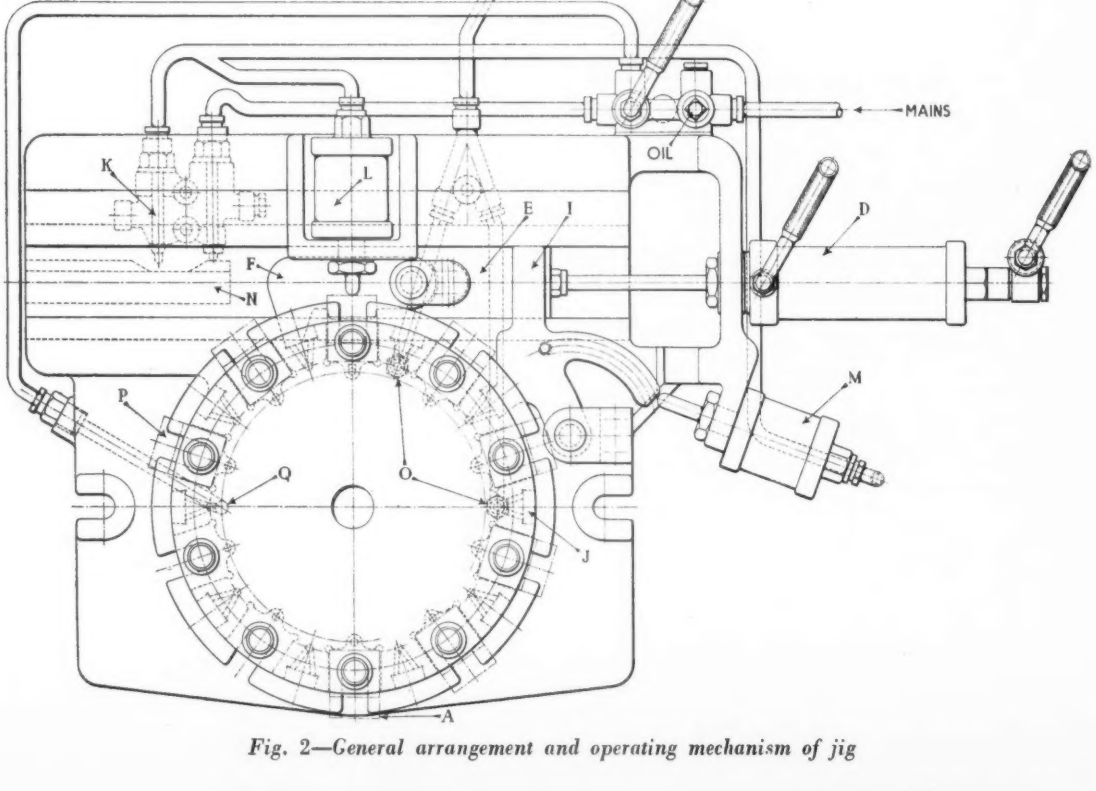


Fig. 2—General arrangement and operating mechanism of jig

The Henschel Condensing Locomotive

The pioneer design for quantity production for the U.S.S.R. and for the German State Railway

IT may be recalled by those who studied the paper on "Condensing Locomotives" (summarised in our June 2, 1944, issue), presented in May, 1944, to the Institution of Mechanical Engineers by Professor Lomonossoff and his son, Captain G. Lomonossoff, that among developments in this field of recent years were those initiated by Henschel & Sohn, of Kassel.

The pioneer locomotive of this type was placed in service in the Argentine in 1931, and five more in 1936; in 1933 a standard Russian class "E" freight locomotive was sent to Kassel to be fitted with condensing apparatus. In 1939 the Iraqi State Railways purchased a condensing tender embodying the same principles.

Meanwhile, the Russian authorities had been testing their freight locomotive, and were so well satisfied that in 1936 they decided to begin their own building programme. No less than 2,000 condensing locomotives on the Henschel system were put in hand, and later proved very useful under the severe winter conditions of Siberia and the Far Eastern territories under Russian control.

The economies to be obtained with condensing equipment commended the design to the German Government, particularly in view of the fuel shortage due to the war; and in 1942 Henschel & Sohn received an order from the German State Railway for the construction of "austerity" condensing locomotives (class "52," 2-10-0s); the earlier examples were supplied with five-axle, and the later with four-axle tenders.

The exhaust steam from both cylinders flows to the suction turbine in the smokebox. Thence it passes down the left-hand side of the locomotive, through an oil separator, to the tender. The exhaust steam from the feed pumps, brake pump, lighting turbine, and one safety valve also is collected by this pipe. The steam in this pipe also feeds the turbine on the tender, which, in turn, drives three fans. From the turbine, the steam is directed to the condensing elements on the right- and left-hand sides of the tender, where it is condensed by the cool air from the fans. The condensate runs into a feed tank, and is returned thence to the locomotive boiler in the normal manner.

The German "austerity" locomotives possess several points of special interest, although in many ways the equipment is similar to that fitted to the Russian engines. As a substitute for the draught in a normal locomotive, the condensing type has an induced draught fan in the smokebox, driven by an exhaust steam turbine, so arranged that the draught varies with the rate of steam consumption. A spark arrestor prevents damage to the fan blades.

With a minimum steam production of about 22,000 lb. per hr. and a maximum speed of 3,000 r.p.m., the exhaust turbine develops 35 h.p., at which output 1,112,422 cu. ft. of smoke gas is exhausted per hour. A reversing valve regulates the pressure, and allows excess steam to by-pass the turbine, thus governing the speed also. When stationary or running downhill, the draught is maintained by admitting live steam to the turbine.

An insulated pipe 12 in. in diameter conveys the exhaust steam from the cylinders to the tender; the pipe has four expansion joints and is provided with a flexible connection between engine and tender. The filters for removal of oil and foreign matter deal with the steam on its way to the turbine, which is of the single-action type with a reduction gear (ratio 6·9/1) driving through a flexible coupling to the main fan shaft. The three fans are driven by this shaft through bevel gears. Each fan is 87 in. in diameter, of welded sheet-metal construction; there are seven vanes per fan, and the maximum speed is 1,000 r.p.m.

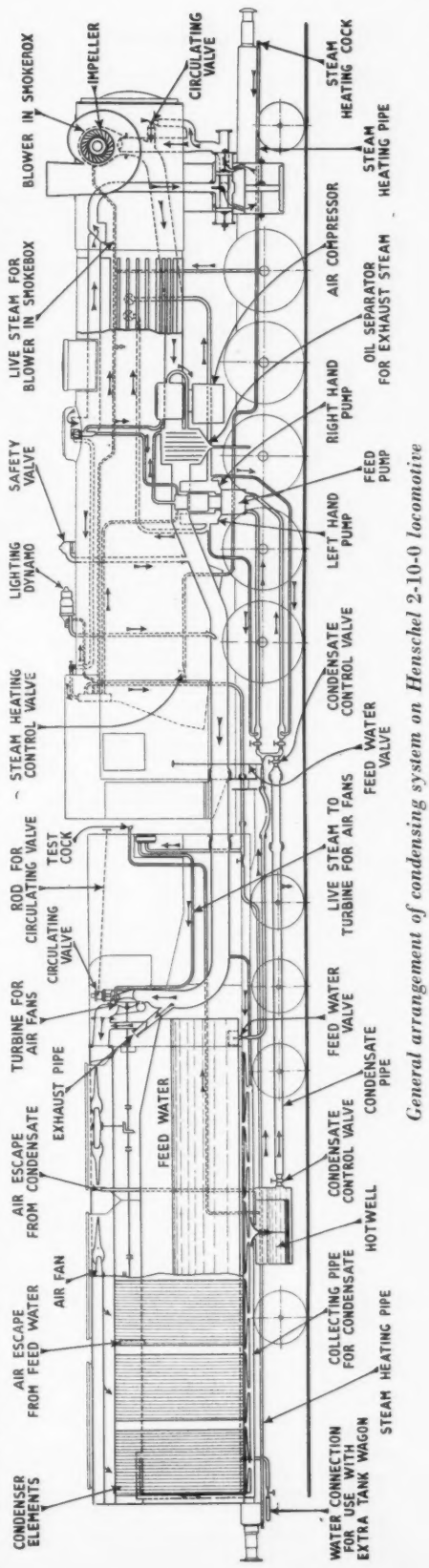
Steam flowing from the condensing turbine is distributed by a branch pipe into the steam channels fixed right and left of the condenser and running through the elements in which the steam is condensed. The condensate collects in a 396-gal. tank under the centre of the tender frame. Galvanised steel pipes of elliptical cross-section form the condensing elements. They are provided with ribs $\frac{1}{16}$ in. thick, spaced at $\frac{1}{8}$-in. intervals, to increase the cooling surface. The condensate, in flowing to the tank just mentioned, passes through a sponge filter which removes the last traces of oil in the water.

In case of necessity, an additional water-tank wagon can be attached. To provide for the unavoidable loss of water, the 5-axle tender carries 3,530 gal. of water, and the 4-axle type 2,976 gal., in a triangular tank on the main tender frame. In winter, as steam is required for heating and other purposes, there is less available as condensate. A heating device is arranged in the triangular tank for use in winter. To prevent freezing of the condenser, sheet metal louvres are arranged so that they can be set to prevent cold air being drawn through the elements.

As the temperature of condensation is about 90° C. (194° F.), injectors cannot be used. Two Knorr pumps with a capacity of 75 gal. per min. each are supplied. In case of necessity the boiler may be fed with tender water. The exhausts from these pumps, and that of the air compressor for the brakes, are fed to the oil separator, so that the condensate is not wasted. Electric lighting is provided from a steam-driven dynamo on top of the boiler. The exhaust steam from the dynamo also is condensed.

If the condensing turbine or its driving gear is damaged, free exhaust takes place; steam is diverted to atmosphere through a special branch leading from the exhaust steam pipe. Similarly, in case of damage to the induction or draught turbine, a special sliding device allows the exhaust steam to be diverted to an auxiliary blower pipe to be exhausted through the chimney.

(*Continued on page* 216)



General arrangement of condensing system on Henschel 2-10-0 locomotive

Northallerton to Darlington Resignalling, L.N.E.R.*

Two important power interlockings, one of lever frame, the other of route panel type, are included in the longest continuous length of colour-light signalling in Great Britain, and comprise features of special interest

Old and new signals at Darlington

THE colour-light signalling between Northallerton and Darlington completes the scheme for resignalling the East Coast main line between York and Darlington. The stretch from Poppleton (now Skelton) junction to Northallerton was brought into use in 1932; three-aspect signals were used at first, but have now been converted to four-aspect on the fast running lines. Four-aspect signals are also used throughout the 14-mile stretch now under review; already the distance of 42½ miles, from Skelton to Darlington, represents the longest continuous length of colour-light signalling in Great Britain.

When the complete resignalling of York Station and environs is finished, the colour-light area will be extended southwards to Naburn, and this stretch, with four-aspect signals throughout on the fast lines, will then be increased to 48¼ miles.

The Northallerton-Darlington section is mainly double-track; the lengths of quadruple track are formed by loops rather than by continuous running lines. The whole 14 miles of line are now controlled from three signal boxes, and the present signalling was brought into use in four stages from April 30 to September 3, 1939.

Relay Interlocking at Northallerton

Until the changeover, colour-light signalling stopped short at the south end of Northallerton station. Now the whole station layout comes under control of the one signal box, and, apart from the avoiding line connecting the Stockton line with that from Ripon and Harrogate, colour-light signals are used throughout. On the main line the control area extends to Wiske Moor, 2 miles north of the station, and on the Hawes branch to Ainderby. The illuminated diagram covers more than this; the track indications on the up main line begin just south of Cowton station, thus including the 5.2-mile section of automatic signals. On the down main lines the indications begin no less than 6 miles to the south.

The interlocking is on similar lines to that installed at Paragon Station, Hull, but the panel includes an innovation designed to assist in the rapid handling of traffic. In addition to the red lights that indicate the occupancy of the numerous track circuits, a series of white visuals is lighted when a route has been correctly set up, thus indicating that each unit has responded.

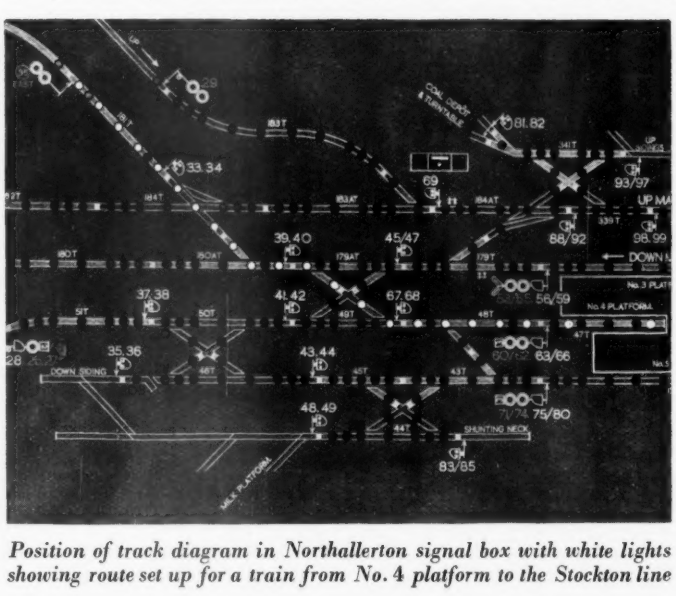
The total number of routes that can be set up is 129, somewhat less than at Hull; nevertheless, the complexity of the controls called for careful planning of the cabin layout and wiring. A three-storey signal box gives an excellent look-out from the control room.

The relays are provided with detachable terminal blocks, so that in the event of a defect developing one can be removed and another substituted very quickly, since not a single wire has to be disconnected. Provision is made on the all-metal racks carrying the relays for hanging the relay terminal blocks (or tops) during the short time that a mechanism is being changed. All apparatus is, as far as possible, fireproof; the fuse and terminal boards, for example, are made of a special asbestos-coated plywood, and all internal wiring is carried out in flame-proof cable.

Long-Distance Point Control

Point operation is all-electric. Hand cranks are provided for emergency operation in the event of power supply failure. Where some of the points are a considerable distance from the signal box, to minimise delay, the hand-crank is made part of the key of a Hepper's instrument located close to the points concerned; this key can only be extracted after an electrical release has been obtained from the signal box, so permitting the hand-crank to be used in a point machine. In the event of a failure of the electrical release, the hand-crank can be mechanically released from the Hepper instrument by the insertion of a small key, obtained from the signal box by breaking a seal. The points in the vicinity of the station and signal box are operated by d.c. point machines in the ordinary manner, but for the remote layouts, motor-driven point controllers are used. These enable control to be effected by only two wires from the signal box to the location, and the current for operating the point machines themselves to be tapped locally through short cable leads, thus reducing voltage drop to a minimum.

On the main fast lines the signalling is four-aspect throughout. Diverging routes are signalled with the aid of position light junction indicators working in conjunction with the running signals. Shunt signals and subsidiary signals are of the position light type. Subsidiary signals fixed below running light signals are illuminated only for the "off" indication, but separate

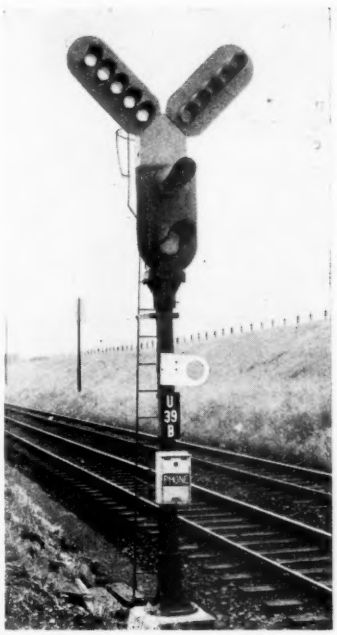


Position of track diagram in Northallerton signal box with white lights showing route set up for a train from No. 4 platform to the Stockton line

* This article was intended to appear soon after the outbreak of war, but had to be held over. It is now published practically as then arranged, without reference to anything that may have occurred since to affect the layout described

shunts show two white lights horizontally for "stop"; shunts and subsidiaries show two white lights diagonally for "proceed."

Some interesting work is to be seen in the linking up of the relay interlocking at Northallerton with adjacent block posts on the various branches. The Hawes branch is single-line beyond Northallerton West Junction, but it has been found possible to abolish tablet working between Northallerton and Ainderby, the first station on the branch. A system of direction levers has been arranged, similar to that employed on the single-line branch from Castleford to Ledston. In the particular case under consideration, to send a train from Ainderby to Northallerton, the signalman at the latter place must first turn his direction switch; then, provided the



Up home signal and junction indicator at Eryholme

intermediate track circuits are clear, the signalman at Ainderby can lower his starting signal.

The southern of the two automatic sections extends from Wiske Moor points (controlled from Northallerton), to Cowton Station, and includes Danby Wiske Station and the small adjoining goods yard. The points concerned are operated mechanically from local ground frames. The home signals are controlled to function as automatics, and approach locked, so that they cannot be restored to normal to release the point levers when any approaching traffic is within a predetermined distance.

An alternative condition under which the signal lever may be fully restored is when a track circuit has been occupied for a certain fixed time, long enough to ensure that the appproaching train has come to a stand, or very nearly so; a time-element relay is then energised to effect the necessary release. Telephone communication is provided between the ground frames and the signal boxes controlling the entrance to the automatic section.

On this stretch the four-aspect automatic signals are spaced approximately 1,300 yd. apart on the down road; there is a gradient of 1 in 650 practically throughout against northbound trains; hence a somewhat longer spacing is used on the up road, 1,450 yd. on an average. Selective telephones are fitted at all automatic signal locations, and at such controlled signals as are fixed at any distance from the respective signal boxes; on the Wiske Moor-Cowton automatic section, telephones at up line signals communicate with Northallerton signal box, those on the down line with Eryholme Junction.

At Eryholme the branch from Richmond joins the main line. The working is controlled by a relay interlocking on somewhat similar lines to that installed at Leeds East. The points immediately adjacent to the signal box are worked by rodding from a mechanical locking frame, the colour-light signals and remote points by thumb-switches, located in the geographical position of the function concerned on the illuminated track diagram.

All the interlocking between point and signal levers is carried out by means of electric lever locks, with which are combined circuit controllers coupled to the mechanical point lever tails. Signals and the remote points are worked individually by thumb switches. The signal box is roomy; the operating unit, a 20-lever locking frame with diagram panel above, is in a well-designed control room; the arrangement of windows gives an ample look-out, and at the same time shields the diagram from direct sunlight. For a relay interlocking the area of ground floor has been kept remarkably small.

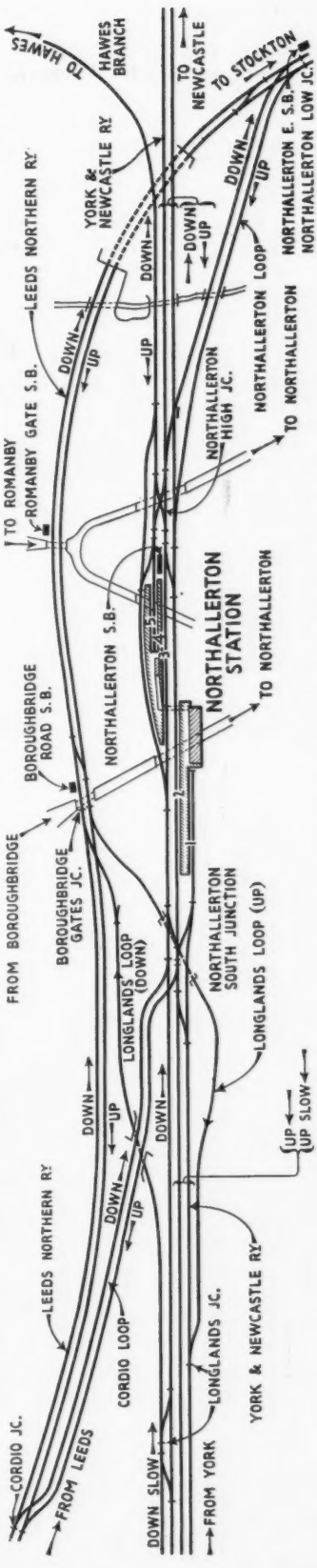
Approach to Darlington

The section of automatic signals from Eryholme northwards to the beginning of the Darlington controlled area includes Croft Spa Station. One of the ground frames working the local points here is in the old signal box.

Certain sidings are worked from ground frames at Black Banks and Croft, though for movements concerning the running lines, releases must be obtained from Darlington South box. Main line points in all cases are operated from the Darlington power frame. What is known as the ground frame at Croft is an adaptation of the former elevated frame; the old signal box is still used. It is a comparatively large interlocking of 50 levers, equipped with an illuminated track diagram. The remaining signal box in the approach to Darlington is Geneva, on the Teeside line; the new work is that necessary for leading into the colour-light area proper. Colour-light distants have been added below the existing outer home and inner home signals, and the outer home from the Darlington direction is now a three-aspect colour-light signal. The layout is track-circuited; the levers controlling signals leading to Darlington are track-locked. There is an illuminated diagram, and the colour-light signals are repeated in the signal box.

Darlington Bank Top Station is laid out so that freight and non-stopping passenger trains pass through clear of the platform area; this entails a considerable amount of crossover work at both ends, but particularly at the south. The new signal box has an all-electric power interlocking of 155 levers, of Westinghouse style "L" type, constructed as one continuous unit. Interlocking between levers is entirely electric; a special set of magnets in sealed cases is reserved for this. Additional magnets provide the normal and reverse track locking of point levers, and the normal indication and back-locking of signal levers.

The majority of the signals, whether main or subsidiary, are approach locked.



General arrangement of lines at Northallerton, without reference to any changes made to meet war conditions

In such cases small plungers are provided on the indication panel of the locking frame to bring into action the appropriate time release, in the event of a wrong movement having been set up. In the case of all approach-locked signals, a separate visual indication shows the signalman when the lever back-lock has been freed. The illuminated diagram is finished in the same general style as those at Northallerton and Eryholme; the track circuits are picked out in bright distinctive colours on a background of matt olive green, and the presence of a train shown by two red lights.

The interlocking between the levers being carried out in the locking frame itself, there are fewer relays to be accommodated in the signal box, and a two-storey building has provided a good arrangement. On the ground floor are, in addition to the relays, a power supply cubicle, rectifiers for trickle charging of batteries for point operation, and the large fuse and terminal board for outgoing signalling cables. As at Northallerton, the nearby points are d.c. operated, and the long-distance ones a.c., with similar arrangements for emergency hand-cranking. Special release levers are provided; the keys for mechanical release of the Hepper instruments are kept under seal in boxes incorporated in the indication panel of the locking frame.

The signals and aspects are in accordance with the established practice in the N.E. Area of the L.N.E.R., but the nature of the layout in relation to the traffic has called for certain special arrangements. On the down gradient leading northward from Eryholme the four-aspect signals are spaced approximately 1,450 yd. apart, but nearing Darlington the presence of turnouts, crossings, etc., necessitates the reduction of this space to a minimum, in one case, of 374 yd. In the case of the up main line the minimum spacing comes down to 222 yd.

Such spacing would not give adequate braking distance for non-stopping expresses and the night sleeping car trains, or high-speed streamline trains. To provide for this, an interesting system of restricted aspects has been devised, whereby the driver of an approaching fast train always gets ample braking distance between the first double yellow aspect encountered and the signal ahead at danger.

The alterations at the north end of Bank Top Station are concerned with the linking up of the colour-light signalling extending southwards with the existing manual block north of Darlington. In the North box the existing mechanical signalling is largely retained, with the addition of the necessary electrical equipment for linking in; there are two illuminated diagrams. The abolition of Darlington East box has necessitated the transferring of certain intermediate platform signals to the North box.

Sub-stations adjacent to the signal boxes at Northallerton and Darlington South feed the signalling installation with a 660 volt single-phase 50-cycle supply and contain diesel-engined alternator standby sets, automatically brought into operation on failure of the main supply. On resumption of the normal supply the alternator set continues to work until manually shut down.

The Westinghouse Brake & Signal Co. Ltd. supplied the bulk of the apparatus and carried out the installation work, while the large over-hanging bracket signal posts were fabricated from reclaimed material in the railway company's own shops; the junction indicators were also manufactured by the L.N.E.R. Mr. C. Carslake, until recently Signal & Telegraph Engineer, North-Eastern Area, was immediately responsible for the design and construction of the signalling, under the general direction of Mr. F. E. Harrison, then Engineer, North-Eastern Area, now Assistant Chief Engineer, L.N.E.R., while the whole scheme was prepared to the requirements of Mr. S. T. Burgoyne, then Superintendent of that Area and at the present time Passenger Manager.

The New Johannesburg Goods Depot

The largest single concrete roof in the world, covering 14 acres of ground, will be the outstanding feature of the new railway goods sheds and marshalling yard at Prospect Township, Johannesburg, on which work has been resumed after an interval of nearly four years. The roof will cover the forwarded goods shed, which is being equipped with seven railway tracks and designed to cope with expanding requirements of Johannesburg.

Preliminary work on the site at Prospect Township was begun in 1938. Nearly 750 houses were removed, and the Rand mineral line was deviated. A portion of the future forwarded goods shed was erected and work was begun on the goods marshalling yard, but in March, 1941, work had to be suspended. The one completed shed was placed at the disposal of the Defence Authorities for the manufacture of munitions and military stores.

Work is now again in full swing, and major alterations are being made to the topographical features of the site, which covers an area of more than 300 acres. Mine dumps are being removed, and are being used as spoil to fill up the deep depression caused by the Natal Spruit. In certain places, the bed of the Natal Spruit is being roofed over with long concrete arches to permit of the general levelling of the site and the laying of the necessary railway tracks across it. At other points, the spruit has been canalised and deviated from its original course.

The strip of land acquired by the South African Railways & Harbours for the project stretches roughly east to west and abuts on the city at the junction of Maritzburg Road and the Main Reef Road near the southern end of Jeppe Dip. From there it extends southwards and eastwards, with its southern boundary fronting on the Johannesburg-Durban Road. The portion nearest to the centre of the city will be occupied by 300 coal storage sites, each 25 ft. long and 20 ft. wide. All these sites will be fed directly by railway lines and will be accessible to road vehicles on both sides. The entrance will be from the traffic circle in the Main Reef Road, whence delivery to the northern and eastern suburbs will be facilitated by the Denver, Jeppe and Nugget Street railway bridges and the Siemert Road subway, these routes by-passing the most congested traffic areas in the centre of the city.

Adjoining the coal sites will be the bulk petrol siding for the road motor transport depot, which is responsible for the collection and delivery of goods. The road motor vehicle sheds cover an area of 300 ft. by 375 ft., but have room for extensions. In the centre of the layout are the received goods sheds and the forwarded goods shed. The former comprise four sheds each 800 ft. long, with a railway line running down the centre between platforms.

The forwarded goods shed, which is to be housed under one continuous roof, will cover an area of some 14 acres. Seven separate railway tracks traverse the shed from end to end of its 1,000-ft. length, and the handling of goods will be facilitated by the provision of platforms alongside the tracks.

Near the forwarded shed will be the rough goods yard, where timber and other bulk goods conveyed in full truck loads will be handled on 1,000-ft. platforms. The yard will contain some thirty sidings in addition to the loading area. The network of railway tracks feeding this and the various other portions of the depot lead out into the marshalling yard, located at the eastern end of the layout. Here, as each train arrives, the wagons will be sorted for despatch to the correct shed, and after having been dealt with, they will return to the marshalling yard to be made up into new trains.

The new depot will be largely self-contained, since among other facilities there will be a large customs shed, tarpaulin repair shed, motor workshops, goods offices and a telephone exchange, as well as a compound capable of housing 1,000 Africans. It is estimated that it will take at least five years before the whole scheme is in full working order and the present congestion at Kazerne and Johannesburg is finally eliminated.

The Henschel Condensing Locomotive

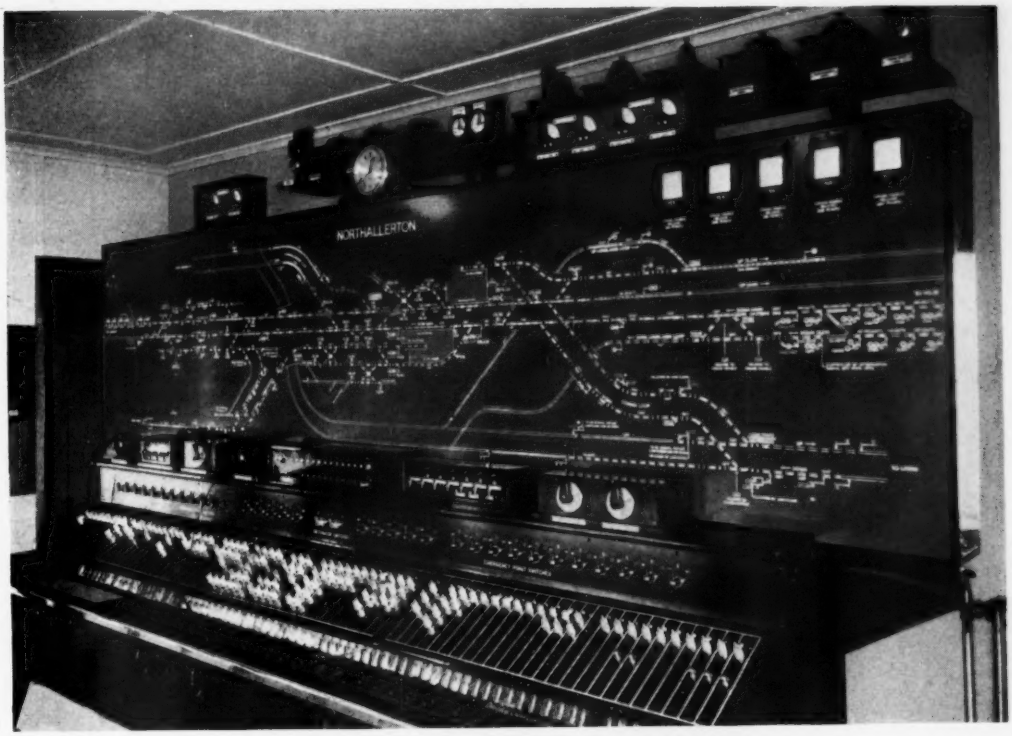
(*Continued from page* 213)

Special attention has been given to the protection of the locomotive from extreme cold. Every steam and water pipe outside the cab is lagged (including fittings). The feed pumps and air pump steam cylinder are housed in a protecting box. The footplate is heated by a steam coil beneath the cab floor. Another warming pipe is connected, *via* the lubricating pipes (also housed in a protecting box) which pass along the boiler, to the cylinder and steam chest. All tender pipes, except the condenser and the tender water pipes, are inside the tender itself. At the bottom of the turbine a water drain pipe conveys any condensation away; the condenser and its tank also are fitted with drain plugs.

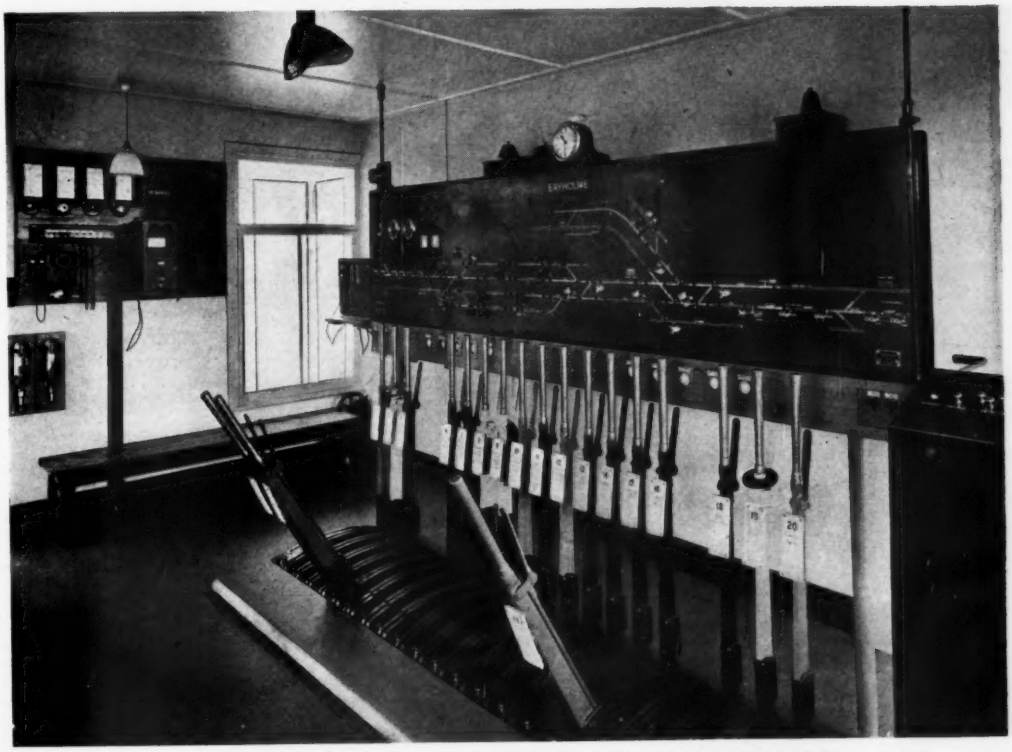
An ordinary steam blower is provided for use after lighting up, but when the pressure reaches about 75 lb. per sq. in. the draught turbine may be brought into use. It is also possible to start the turbine with live steam from another locomotive, until a boiler pressure of about 75 lb. per sq. in. is attained, after which it can be worked under steam from its own boiler. The firing is the same as for an ordinary locomotive.

The live steam valve for the condensing fan turbine must be closed on long runs. On starting the locomotive, and on short runs, when the regulator is opened and closed continually, the valve must be opened to avoid the continual starting and stopping of this turbine. On stopping, the valve must be opened, to rotate the fans and so prevent possible damage to their blades by steam blowing-off at the safety valves, which is led, for economy, to the live steam pipe concerned.

Northallerton to Darlington Resignalling, L.N.E.R.



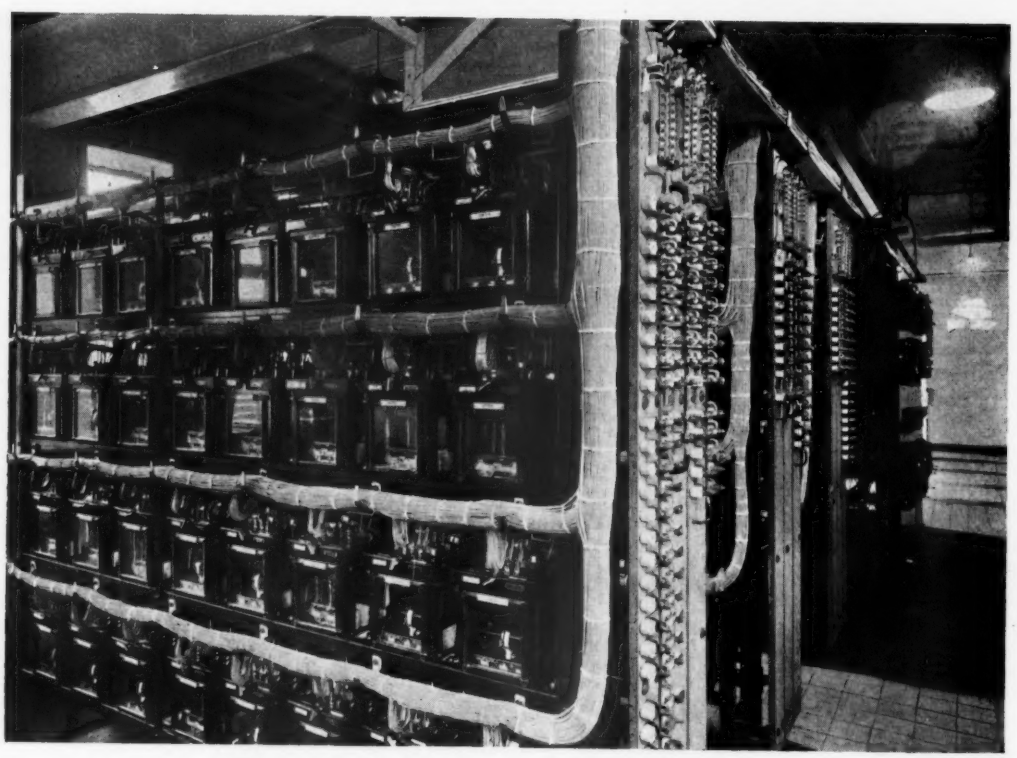
Control panel and illuminated diagram at Northallerton



Control panel and selective telephone cabinet in Eryholme signal box

Northallerton to Darlington Resignalling, L.N.E.R.

The 155-lever electrically interlocked power frame at Darlington South



Part of the relay room at Darlington South signal box

RAILWAY NEWS SECTION

PERSONAL

Mr. S. R. Geary, General Manager (Road Services), L.P.T.B., has retired, after 41 years' service. He was appointed to that position in October, 1945. A portrait and biography of Mr. Geary appeared in our October 19, 1945, issue.

The Minister of Transport has appointed Mr. J. A. Burnett to be Divisional Road Engineer, Scotland Division, in succession to Mr. W. H. Budgett, who has retired.

Mr. Edward A. Ryder has been appointed Assistant to the Traffic Vice-President, Montreal, Canadian National Railways, in succession to Mr. J. B. Thom, who, as already recorded, has been appointed European Traffic Manager in London. Mr. Ryder has hitherto been Assistant to the General Freight Traffic Manager.

Dr. Edwin Gregory, Chief Metallurgist of Edgar Allen & Co. Ltd., has been elected President of the Institution of Engineering Inspection.

Mr. J. F. Tomlinson, Secretary for Railways & Assistant to the Commissioner of Railways, Western Australia, who, as recorded in our August 16 issue, has retired, was born in Liverpool (England) in 1879, and went to Australia at an early age. He commenced his railway career in 1894 as a messenger boy with the New South Wales Government Railways. In 1901 he was selected, with other eastern states railway officials, to join the staff of the Western Australian Government Railways. For the next 18 years he was connected with the accounts and audit branches, in which he filled various positions, until he was appointed Audit Inspector. On the re-organisation of the branch of the Secretary for Railways in 1919, Mr. Tomlinson was placed in charge of the department's rates, fares and financial matters; and four years later he was promoted to take charge of the branch. In 1929, while retaining the position of Secretary for Railways, he was appointed Assistant to the Commissioner. On a number of occasions, during the absence on leave or on other duties of the Commissioner, he served as Deputy-Commissioner—once during 1939 for six months while the Commissioner (Mr. J. A. Ellis) was abroad, and again during 1942-43 for 18 months while Mr. Ellis was seconded to the Commonwealth for special work in connection with the war effort. Normally, having reached the usual retiring age, Mr. Tomlinson would have retired in 1944, but, at the request of the Commissioner and with the approval of the Government, he remained in office.

We regret to record the death on August 3, at the age of 66, of Major Oscar Loewenthal, C.B.E., who retired on July 1, 1944, from the local committees and the General Managerships of the Buenos Ayres Great Southern and Buenos Ayres Western Railways.

Mr. H. H. Halliday, who has been appointed Assistant General Manager (Staff), L.N.E.R., in succession to Mr. Kenelm Kerr, as announced in our issue of August 9, was educated at Easingwold Grammar School, and entered the service of the old North Eastern Railway as a junior clerk in the Chief Goods Manager's Office, York, in 1903. From the first he showed an aptitude for staff work, but in 1911 was selected for a course of special training in traffic working. He was transferred temporarily to the Operating Department and spent a strenuous time at Tyne Dock, Middlesbrough, and other places. This experience broadened him into an all-round railwayman and gave him knowledge which was of great value when he again took up staff work at headquarters. After being in charge of the Staff Section of the Goods and Passenger Departments for six years, Mr. Halliday took control of an important section of work in the General Manager's Office in 1922. This move led to his appointment on amalgamation as Head of the Salaried & Clerical Staff Section of the Chief General Manager's Office, L.N.E.R. In 1924 he was transferred to the Wages Staff Section. He became Principal Assistant (Staff) in 1932, and in that capacity frequently represented his company at important negotiations with the trade unions and also appeared before the Industrial Court. We feel sure that his promotion to the important position of Assistant General Manager (Staff) will be received with general satisfaction.

Mr. H. H. Halliday

Appointed Assistant General Manager (Staff), L.N.E.R.

Mr. J. B. Jerome has been appointed Foreign Freight Traffic Manager, New York Central System, with headquarters in New York City. Mr. Jerome, who hitherto has been General Foreign Freight Agent, succeeds Mr. A. E. Baylis, recently appointed an Assistant General Freight Traffic Manager, who will continue general supervision over the Foreign Freight Traffic Department. Mr. E. J. Zschirpe and Mr. J. H. Norwood also have been appointed Assistant General Freight Traffic Managers.

Mr. B. M. Lindsay Fynn has been appointed Chairman, and Lt.-Colonel R. T. Hartmann, Deputy-Chairman, of Lintafelt Limited, the works of which are at Loudwater, High Wycombe.

Mr. C. F. Roby, who has been Managing Director of Cincinnati Milling Machines Limited since its incorporation in 1933, is relinquishing his Managing Directorship to take up a post with the parent company in the U.S.A. Mr. Roby is remaining on the board of the British company and is expected to be a frequent visitor to Great Britain. Mr. A. W. Foerster, who also has been associated with the British company since its inception, has been elected to the board and appointed Managing Director. Mr. J. G. Petter, the Sales & Engineering Manager, also has been elected a Director. Mr. Roby expects to leave for America early in September.

Mr. A. H. Cantrell, B.Sc. (Eng.), London, A.M.Inst.C.E., Assistant Divisional Engineer, London East, Southern Railway, who, as recorded in our July 5 issue, has been appointed Divisional Engineer, London West, as from August 1, was on the staff of the Bridge Stress Committee of the Department of Scientific & Industrial Research from 1924 to 1927. He joined the staff of the Chief Engineer, Southern Railway, in 1927 as draughtsman in the Bridge Office. Mr. Cantrell was appointed Resident Engineer on bridge reconstruction, and in 1930 was transferred to the New Works Office as Resident Engineer for the first few months of the reconstruction of Haywards Heath Station. He returned to the Bridge Office at Waterloo in 1931 and was engaged on bridge design, including the scheme for the flyover at Wimbledon. In 1935 Mr. Cantrell transferred to the office of the Divisional Engineer, London East, and concentrated on permanent way. He was appointed Engineering Assistant in the same office in 1939, and carried out investigations into rail welding and supervised the "blanketing" of the track near Hildenborough. He was appointed Assistant Divisional Engineer, London East, in May, 1942. Mr. Cantrell had been commissioned in the Supplementary Reserve, R.E., in 1929, and became Adjutant, H.Q. Transportation Stores Group. He went to France on the outbreak of the recent war, and was appointed Deputy Assistant Director of Transportation (Movement Control) of the Railhead Area at Arras (with the rank of Major) and later in Belgium. He returned

Mr. A. H. Cantrell

Appointed Divisional Engineer, London West, Southern Railway

Mr. K. C. Griffiths

Appointed Staff Assistant to Superintendent of the Line, G.W.R.

Mr. S. S. Wheeler

Appointed Commercial Advertising Officer, L.P.T.B.

via Dunkirk. As second in command of a railway construction group he was in the North African campaign, and in the rank of Lt.-Colonel was Assistant Director of Transportation (Construction) and later in command of a construction group through the Sicilian and Italian campaigns. Mr. Cantrell was mentioned in despatches three times, and was awarded the American decoration of the Legion of Merit.

Mr. K. C. Griffiths, Assistant Divisional Superintendent, Cardiff, Great Western Railway, who, as recorded in our August 2 issue, has been appointed Staff Assistant to the Superintendent of the Line, from September 30, entered the company's service in the Telegraph Office at Plymouth in 1910, and subsequently was employed on relief duties in various divisions. He served with H.M. Forces overseas during the 1914-18 war. In 1920 he returned to the Traffic Department in the Office of the Superintendent of the Line. He was transferred to the Staff Section in 1923, where he was associated with pooling and "closer-working" arrangements from their inception, and subsequently was placed in charge of that phase of the work. Mr. Griffiths was appointed Chief Clerk to the Divisional Superintendent at Exeter in June, 1942, and Assistant Divisional Superintendent at Cardiff in July, 1944.

Mr. S. S. Wheeler, who, as recorded in our Augus: 16 issue, has been appointed Commercial Advertising Officer, L.P.T.B., has been Assistant Advertising Manager of the *Evening Standard* since February of this year. He served in the R.A.F. from the outbreak of the recent war, and in 1943 he became Deputy-Director of War Organisation & Administration (Planning) at the Air Ministry. For the twelve months before being demobilised in September of last year he served as Group Captain (Administration) at H.Q., 2nd Tactical Air Force. Mr. Wheeler, who is a solicitor, joined the *Daily Express* Legal Department in Manchester in 1933, and was appointed its Manchester Advertising Manager in June of that year.

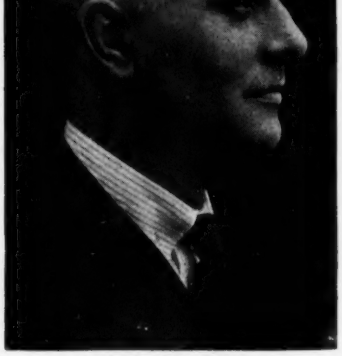
Mr. W. M. Sangster, District Locomotive Superintendent, Shrewsbury, L.M.S.R., who, as recorded in our August 2 issue, has been appointed District Locomotive Superintendent, Longsight, commenced his training at the Horwich Works of the Lancashire & Yorkshire Railway as a premium apprentice under the late Mr. George Hughes, Chief Mechanical Engineer. Mr. Sangster received technical training at the Mechanics Institute, Horwich. After service in the Army from 1914 to 1919, he was appointed, on return, in charge of Southport Locomotive Depot, and was transferred to Cricklewood and Kentish Town in 1928. In 1933 he was in charge of the Locomotive Analysis Committee in the Western Division. Mr. Sangster later was appointed District Locomotive Super-

Mr. W. M. Sangster

Appointed District Locomotive Superintendent, Longsight, L.M.S.R.

Mr. V. Mitchell

Appointed Area Technical Assistant, Signal & Telegraph Department, Manchester, L.M.S.R.



Mr. D. W. Sanford

Appointed Superintending Engineer, Locomotive Testing Station, Rugby (L.M.S.R. & L.N.E.R.)

intendent, Peterborough, and, on that district being absorbed into the Nottingham area, was transferred to Leeds as Assistant District Locomotive Superintendent in 1934. He became Assistant, Office of Divisional Superintendent of Operation, Manchester, in 1939; and in August, 1943, was appointed District Locomotive Superintendent, Shrewsbury.

Mr. V. Mitchell, O.B.E., Area Technical Assistant, Signal & Telegraph Engineer's Department, Bolton, L.M.S.R., who, as recorded in our June 14 issue, has been appointed Area Technical Assistant, Signal & Telegraph Engineer's Department, Manchester, was appointed, after five years' training, Telegraph Inspector, Carlisle, L.M.S.R., in 1925. He was transferred to Manchester as Telegraph Inspector in 1930, and was appointed Signal & Telegraph Inspector, Blackburn, in 1933. Mr. Mitchell was appointed Area Technical Assistant, Bolton, in 1940. Since August, 1939, he has been serving in H.M. Forces. He was demobilised in September, 1945, with the rank of Lt.-Colonel, having been mentioned in despatches three times and awarded the O.B.E. During that period he commanded the Railway Telegraph Company, Royal Signals, 20 Corps Signals, 18 Army Group Signals, 141 Force Signals and 15 Army Group Signals, having served in France, North Africa, Sicily, Italy and, finally, attached to H.Q., U.S. Forces, Austria.

Mr. D. W. Sanford, A.M.Inst.C.E., M.I.Loco.E., who, as recorded in our August 2 issue, has been appointed Superintending Engineer, Locomotive Testing Station, Rugby (L.M.S.R. & L.N.E.R.), took an honours degree in Mechanical Science at Cambridge, and entered Derby Locomotive Works, Midland Railway, in 1912. From 1914 to 1919 he served in the Royal Engineers, in France, Greece and Turkey. On returning from the Army he had a brief period in the running shed, and then entered the drawing office. In 1927 Mr. Sanford was made Senior Experimental Draughtsman in charge of dynamometer car testing and other experimental work on locomotives. In 1934 he became Chief Locomotive Draughtsman at Derby, and, in 1937, Development Assistant. During the recent war he was Headquarters Fuel Efficiency Officer for the seven main works of the L.M.S.R.

Mr. C. E. Rooke (formerly General Manager, Nigerian Railway) is a member of a mission appointed by the Secretary of State for the Colonies to investigate oil seed production in West Africa. He left England by air on August 19.

The late Rt. Hon. Viscount Southwood of Fernhurst, Chairman of Odhams Press Limited, and Chairman of the Red Cross Penny-a-Week Committee of H.R.H. the Duke of Gloucester's Fund, left £165,063.

Commander G. O. Waters has been appointed Manager of the English Division of the British European Airways Corporation. As Managing Director of Channel Islands Airways Limited, Jersey Airways Limited and Guernsey Airways Limited, Commander Waters has been responsible for the post-war reconstruction of those companies, and to a great extent for their successful pre-war development. Channel Islands Airways are now handling approximately ten thousand passengers a month. Commander Waters first went to the Channel Islands in 1939 as General Manager of Jersey Airways Limited, and previously had been concerned with the development of British internal air services on behalf of the railways with Railway Air Services Limited.

Commander J. M. Keene-Miller, hitherto Staff Pilot of the company, is now acting in the capacity of General Manager of Channel Islands Airways Limited.

Southern Railway Welfare Officer

In consequence of the death of Mr. E. Uzzell, Welfare Officer, Southern Railway, the work formerly carried out by him has been transferred to the Chief Officer for Labour & Establishment, who will control all welfare arrangements throughout the system. For that purpose, Mr. J. H. Chitty, of the Traffic Department, has been appointed to the staff of the Chief Officer for Labour & Establishment as Welfare Officer to deal with the following matters: (1) social and recreational; (2) staff accommodation and amenities (including contacts with Ministry of Labour Regional Welfare Officers); (3) ambulance and first aid.

The women's welfare organisation continues under the control of the Chief Officer for Labour & Establishment. The Welfare Supervisor (Women) is Mrs. Hargrave.

The Southern Railway staff now numbers some 67,000.

L.N.E.R. Appointment.

Mr. M. B. Thomas has been appointed Assistant Advertising Manager of the L.N.E.R.

The "Kiddies' Express," G.W.R.

A pre-war venture of the G.W.R. was revived on a bigger scale on August 15, when the "Kiddies' Express" left Paddington at 8.45 a.m. for Weston-super-Mare—the first day excursion arranged by the company since the re-introduction of cheap fares. A party of 250 children and 250 adult relations travelled on the train, which consisted of eleven coaches and a generator van for supplying light for news reel photographers. The formation included two theatre coaches, in which entertainers gave half-hour performances, and a buffet car. The entertainment and comfort of the youthful passengers were supervised by a Train Entertainments Officer and two lady stewards.

The appropriately-chosen locomotive was No. 1004, *County of Somerset*, of the new "1000" class. After a momentary halt at Bristol for change of enginemen, the train arrived at Weston-super-Mare (Locking Road) at 11.35 a.m. Here, decorated donkey carts were waiting to convey many of the children in a parade through the streets to the front. Among the amusements which had been arranged, were a treasure hunt on the beach and a singing contest. The programme of the excursion issued on the train included a "puzzle corner," answers to which were given on the return journey.

Members of the press and photographers were entertained to a luncheon at the Melrose Café, at which the host was the Mayor of Weston-super-Mare (Alderman W. B. Craig, J.P.). Tea was served at the Winter Gardens Pavilion.

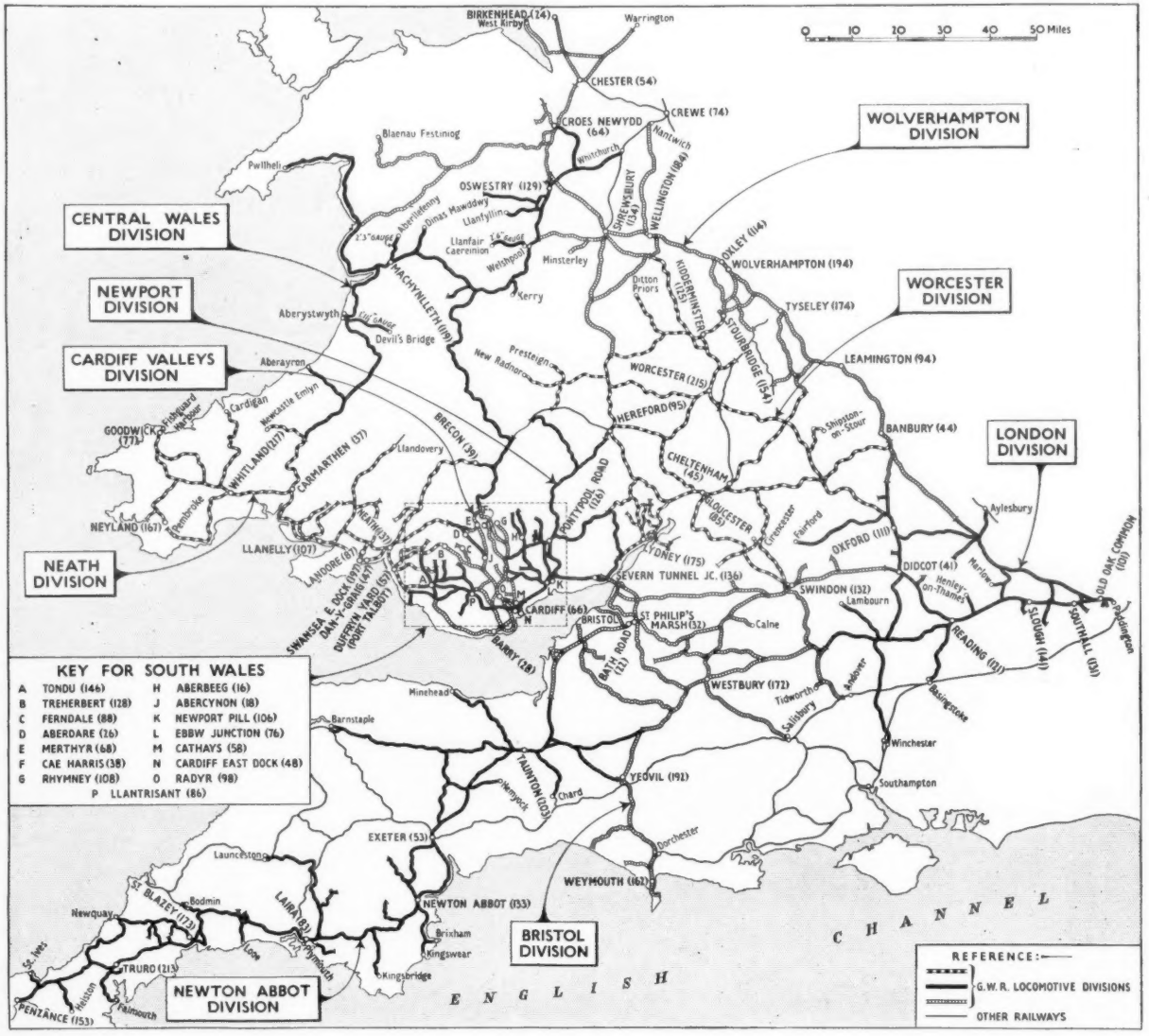
The return departure was at 6.25 p.m. and Paddington was reached at 9.30 p.m. The return fare for the excursion was 12s. for children and 24s. for adults. All entertainments at Weston-super-Mare were free.

The "Kiddies' Express," Great Western Railway

Entertainers and decorated locomotive at Paddington before departure

A show in progress in the theatre coach, en route for Weston-super-Mare

List of Locomotive Depots on the G.W.R. and Engines Allocated



	No. of engines	Code Letter	Code No.
London Division			
Didcot	49	DID	41
Old Oak Common	207	PDN	101
Oxford	58	OXF	111
Reading	102	RDG	121
Southall	72	SHL	131
Slough	49	SLO	141
Bristol Division			
Bristol (Bath Road)	82	BRD	22
Bristol (St. Philip's Marsh)	162	SPM	32
Swindon	117	SDN	132
Weymouth	25	WEY	162
Westbury	69	WES	172
Yeovil	9	YEO	192
Newton Abbot Division			
Exeter	36	EXE	53
Laira	111	LA	83
Newton Abbot	70	NA	133
Penzance	26	PZ	153
St. Blazey	31	SBZ	173
Taunton	56	TN	203
Truro	21	TR	213
Wolverhampton Division			
Birkenhead	38	BHD	24
Banbury	77	BAN	44
Chester	51	CHR	54
Croes Newydd	40	CNYD	64
Crewe	2	CRW	74
Leamington	26	LMTN	94
Oxley	99	OXY	114
Shrewsbury	48	SALOP	134
Stourbridge	75	STB	154
Tyseley	116	TYS	174
Wellington	19	WLN	184
Wolverhampton	74	SRD	194
Worcester Division			
Cheltenham	16	CHEL	45
Gloucester	69	GLO	85
Hereford	42	HFD	95
Kidderminster	19	KDR	125
Lydney	22	LYD	175
Worcester	98	WOS	215
Newport Division			
Aberbeeg	37	ABEEG	16
Aberdare	66	ABDR	26
Cardiff	133	CDF	66
Ebbw Junction	165	NPT	76
Llantrisant	21	LTS	86
Newport Pill	60	PILL	106
Pontypool Road	95	PPRD	126
Severn Tunnel Jc.	96	STJ	136
Tondu	47	TDU	146
Neath Division			
Carmarthen	46	CARM	37
Dan-y-graig	38	DG	47
Duffryn Yard	63	DYD	57
Goodwick	16	FGD	77
Landore	59	LDR	87
Llanelly	101	LLY	107
Neath	66	NEA	137
Neyland	23	NEY	167
Swansea East Dock	36	SED	197
Whitland	22	WTD	217
Cardiff Valleys Division			
Abercynon	29	C.V.AYN	18
Barry	84	C.V.BRY	28
Cae Harris	9	CH	38
Cardiff E. Dock	72	CED	48
Cathays	57	CHYS	58
Merthyr	24	MTHR	68
Ferndale	11	C.V.FDL	88
Radyr	28	R	98
Rhymney	15	RHY	108
Treherbert	29	THT	128
Central Wales Division			
Brecon	12	BCN	39
Machynlleth	51	MCH	119
Oswestry	57	OSW	129

G.W.R. Locomotive Depots

The G.W.R. Magazine for March last contained a list of locomotive depots on the company's system to which engines are allocated, and showed the code letters of the engines based on each particular depot.

A column was also included headed "No," and this has caused misapprehension in some quarters, as it appeared to show the number of engines allocated to the depot. The column should, however, have been headed "Code No."

This code number is used to facilitate accounting and statistical work in connection with the operations at each depot, and, as it has no relation to the number of engines at any depot, it is of little interest even to the railway enthusiast.

The number of engines allocated to each depot, however, is of great interest to many people, and we have been fortunate enough to secure this information and have reproduced it on the opposite page, together with a map showing the various divisions, the location of the depots, and their numbers.

Australasian Railway Statistics

Once again, the annual report on the working of the Queensland Government Railways contains a table in which are summarised the principal operating figures and statistics for each of the Government railway systems of the States which comprise the Australian Commonwealth, and also of New Zealand. From the table, which is reproduced below, will be seen the considerable variations which occur in each territory.

As compared with a year earlier, it may be noted that the percentage of working expenses to earnings has increased in every case excepting that of New South Wales.

The figures, with the previous year's figure shown in brackets, range from 78·14 (79·81) for New South Wales, to 94·21 (87·22) for South Australia. Queensland is 85·40 (81·22), Western Australia is 88·03 (86·54), and Victoria, for one year earlier than the other comparisons, is 83·20 (82·44). The similar figure for New Zealand is 93·96 (84·41).

A similar statement, compiled from statistics issued in respect of the year 1944, appeared in our issue of June 29, 1945; figures for the year 1943 we published in our issue of September 15, 1944.

It will be noticed that the figures for Victoria relate to the year ended June 30, 1944. This accords with the summary published by the Queensland Government Railways, which presumably had not received 1945 figures at the time the table was compiled.

Although the report of the Victorian Railways for the year ended June 30, 1945, has since been published, and has been noticed in our columns, it does not include some of the data contained in the comparative analysis, and therefore we have left the Queensland statement in its original form.

COMPARATIVE ANALYSIS OF RAILWAY ACCOUNTS IN THE STATES OF QUEENSLAND (EXCLUDING UNIFORM GAUGE RAILWAY), NEW SOUTH WALES, VICTORIA, SOUTH AUSTRALIA, WESTERN AUSTRALIA, AND THE DOMINION OF NEW ZEALAND

Particulars	Queensland Year ended June 30, 1945*	New South Wales Year ended June 30, 1945	Victoria Year ended June 30, 1944¶	South Australia Year ended June 30, 1945	Western Australia Year ended June 30, 1945	New Zealand Year ended March 31, 1945
Area in square miles	670,500	309,432	87,884	380,070	975,920	103,416
Population	1,071,767	2,885,594	1,996,901	626,000	488,300	1,664,585
Miles open	6,497	6,127¼	4,748	2,547	4,381	3,504
Gauge	3 ft. 6 in. and 2 ft. 0 in.	4 ft. 8½ in.	5 ft. 3 in. and 2 ft. 6 in.	5 ft. 3 in. and 3 ft. 6 in.	3 ft. 6 in.	3 ft. 6 in.
Capital (open lines)	£40,676,231	£153,099,820	§£52,930,749	£30,310,211	£26,808,182	£71,353,574
Average cost per mile	£6,260	£24,996	£11,148	£11,899	£6,119	£20,364
Population per mile of railway	165	471	421	246	111	475
Cost per head of population	£37 19s. 1d.	£53 1s. 2d.	£26 10s. 2d.	£48 8s 5d.	£54 18s. 0d.	£42 17s. 4d.
Gross earnings	£13,225,617	£31,577,137	£15,881,888	£5,484,439	£4,276,250	£14,459,750
Working expenses	£11,295,230	£24,673,209	£13,213,417	£5,047,081	£3,764,290	£13,260,277
Profit on working	£1,930,387	£6,903,928	£2,668,471	£437,358	£511,960	£1,199,473
Percentage of net earnings to capital (open lines)	£4 14s. 11d.	£4 10s. 2d	£5 0s. 10d.	£0 19s. 10d.	£1 18s. 2d.	£1 13s. 8d.
Percentage of working expenses to earnings—						
Maintenance	17·79	18·42	16·18	14·77	16·58	20·75
Locomotive	43·06	33·58	27·79	46·44	41·94	42·68
Traffic	22·05	20·87	23·34	26·11	21·87	27·80
General	2·50	5·27	15·89	6·89	7·64	2·73
Total	85·40	78·14	83·20	94·21	88·03	93·96
Earnings per average mile open	£2,035	£5,153	£3,343	£2,152	£976	£3,552
Working expenses per average mile open—	£	£	£	£	£	£
Maintenance	362·11	949	540·89	318	161·82	737·09
Locomotive	876·38	1,730	929·05	999	409·28	1,516·32
Traffic	448·94	1,075	780·25	563	213·42	987·64
General	50·88	272	530·99	148	74·62	97·10
Total	£1,738·31	£4,026	£2,781·18	£2,028	£859·14	£3,338·15
Earnings per train mile	s. d. 15 2¾	†	s. d. 19 4¼	s. d. 16 7	s. d. 13 8	s. d. 19 5½
Working expenses per train mile—	s. d.		s. d.	s. d.	s. d.	s. d.
Maintenance	2 8½	†	3 1½	2 5½	2 3	5 0½
Locomotive	6 6¾	†	5 4½	7 8½	5 9	8 3½
Traffic	3 4½	†	4 6½	4 4	3 0	5 5
General	0 4½	†	3 1	1 1¾	1 0	0 6½
Total	13 0	†	16 1¼	15 7½	12 0	18 3¼
Earnings per engine	£16,913	£ 27,506	£22,120	£16,772	£10,279	£19,511
Earnings per carriage (coaching)	£2,842	£4,353	£4,186	£2,572	£3,197	£2,307
Earnings per wagon (goods and livestock)	£435	£667	£379	£452	£257	£270
Earnings per head of population	£12 6s. 10d.	£10 18s. 10d.	£7 19s. 1d.	£8 15s. 3d.	£8 15s. 2d.	£8 13s. 9d.
Number of passenger journeys	38,534,318	254,099,105	194,137,624	24,820,027	18,099,395	32,994,529
Goods tonnage	5,164,655	17,792,891	7,564,442	3,258,879	2,765,099	8,177,551
Livestock tonnage	633,821	‡	729,784	242,942	139,332	776,683
Average number of passengers per average mile of railway	5,930	41,469	40,862	9,743	4,131	9,416
Train mileage	17,373,685	†	16,413,406	6,618,028	6,262,697	12,802,536
Train miles per average mile of railway open	2,674	†	3,455	2,598	1,429	3,653

* Exclusive of Uniform Gauge Railway † Train mileage statistics suspended during war period ‡ Livestock statistics suspended during war period
§ Capital reduced by £25,594,906 Railway (Finance Adjustment) Act, 1936 ¶ Comparable 1945 figures not available

Development of Soviet Railway Transport

By I. Kovalev, People's Commissar of Railways of the U.S.S.R.

The Soviet railway system is on the threshold of large-scale restoration and development, to take place during the next five years. The scheme aims at regaining and surpassing the level attained before the war in the reconstruction and technical re-equipment of the U.S.S.R. rail transport service.

Among the main tasks are the contemplated increases in car-loadings and passenger traffic, both of which are to be doubled by the end of the five years. The large-scale changes in the location of industry effected during the war necessitate a considerable traffic increase in the Urals, Siberia, the Volga area, and the Donbas, area, as well as on the railways connecting the centre of the country with the Baltic ports, and with the western and eastern areas of the country. To improve the work of the railways in the Urals, Siberia, the Volga area and the Donbas, the Government has decided to set up special regional administrations which will make for increased efficiency on these lines.

New Trunk Lines

In addition to restoring and increasing the carrying capacity of existing lines, it will be necessary to build new trunk lines. Of considerable importance, also, will be the building of additional lines connecting the central areas with Siberia and the Far East; and the Kuzvas and Karaganda with the Urals and Central Asia. An increase in rail connections between the Donbas, Krivoi Rog area, the Caucasus, and other parts of the country, is also imperative.

Improvement of permanent way is one of the main problems. Some 37,300 miles of track will have to be replaced by heavier rails. An important item in the reconstruction programme is electrification, primarily of the lines in the Urals and Siberia. This would make it possible to increase carrying capacity by approximately 200 per cent. for single-track lines and from 150 per cent. to 170 per cent. for double lines; to cut working costs 30 per cent., and personnel by 25 per cent. In this way fuel saving will also be effected, while local low-quality fuels can be used for the power stations in most cases. Particular stress is laid on the use of diesel locomotives, which have many advantages over the ordinary steam engine. They consume only about one-quarter the fuel needed by the latter, while their operation costs are about 35 per cent. less.

The fact that the diesel locomotive can make runs of 500 miles and longer without taking on water or fuel will make it possible to reduce the number of maintenance depots, and thus cut operating costs, improve despatching, and speed up the turnover of rolling stock.

A number of divisions of the Siberian railways, as well as of lines crossing the great Caspian depression, are scheduled to go over to diesel traction first. This is particularly desirable on the lines in question in view of the shortage of water in their territory, and the proximity of oil sources. This type of engine can be used very effectively in Central Asia, the North Caucasus, and the Volga area, where oil production is scheduled to increase sharply in the course of the next few years.

In spite of electrification and the introduction of diesel locomotives on a number of divisions, the steam locomotive will nevertheless remain the main type of motive power. While retaining in use most of the existing type of locomotives, it is intended to devote attention to their modernisation, first and foremost to getting more power from the same quantity of fuel and to the fuller mechanisation of the crews' work. Much work will also be done in the design and construction of new locomotive types.

During the Stalin five-year plans, the carrying capacity of rolling stock increased by 60 per cent. The proportion of large-size freight wagons in the total increased from 5.5 per cent. to 30 per cent. Nevertheless, the wagons now available are still too few in number and of too low a capacity. To meet requirements, it will be necessary to add to the present rolling stock numbers of large-size box-wagons, as well as bogie open wagons for loads like coal or ore. As for the new passenger coaches, all-metal designs, making for greater durability, will be used.

In the immediate future it is planned to introduce centralised traffic control on 685 miles of track, and to equip 7,150 miles with automatic train stops and cab signalling. This will be a substantial additional safety factor. The installation or restoration of the automatic block system will likewise be continued over 9,325 miles of track.

On lines with lighter traffic, a semi-automatic block system is planned. Of great significance will be the restoration and expansion of junctions and yards, particularly marshalling yards, the number and location of which are no longer appropriate to the flow of traffic. This work is to be undertaken first on the Urals and Siberian railways.

The most important task confronting the railways is the all-round improvement of efficiency, particularly speeding up the goods wagon turn-round. In the course of the war this turn-round slowed down, because of the damage suffered by many lines, longer runs, longer stoppages for loading and unloading, and so on. It is planned to cut the average time between turn-rounds to seven days by 1950.

As a result of technical improvements and increased efficiency, rail transport will be considerably cheaper by the end of the fourth five-year plan period. This is to be achieved by increased productivity of labour and the reduction of operating costs, in particular by effecting a cut in coal consumption by steam locomotives and going over to electric or diesel locomotives on a number of divisions. The saving in fuel will be aided by the use of a higher-grade coal fuel, to be obtained from new coal concentration plants, the improvement of fuel mixtures, and the briquetting of fine coal.

In the course of the five-year plan it will be necessary to train and re-train over three million workers. A chain of technical schools providing two and three years' instruction courses for locomotive engineers and other key occupations will annually turn out some 30,000 trained people.

There is also much work ahead for the higher educational establishments specialising in the training of engineers and technicians for the railways. The establishment of an Academy of Railway Transport is contemplated to prepare people already in fairly high positions on the railways for executive posts.

London Transport Bus and Railway Developments

Speaking at a recent luncheon of the Sutton Rotary Club, Mr. W. W. Howells, Press Liaison, London Transport, reviewed the work done by the board in restoring pre-war road and rail facilities. This included later vehicles, resumption of 26 Green Line routes, Country Bus extensions, restoration of Sunday morning services on 155 Country routes, and innumerable minor adjustments in services for the convenience of passengers. Central Buses were running 4,426,000 miles a week, 1,250,000 miles more than in May, 1945, and there were similar increases with trams, trolleybuses, and on the Underground. The efficiency and comfort of buses was being increased. In addition to improved services introduced this summer, 19 Central Bus routes would be augmented further at the end of August.

On the railways, redecoration had begun, loudspeakers had been installed, new ventilators had been fitted in cars, and non-skid escalator hand-rails had been provided. Emergency bells in booking halls would announce to the booking office staff that the supply of tickets in a particular machine had run out. Everything which the available labour and materials could do to ease travel conditions in London had been done or was under way. Already one new experimental car had been introduced on the Metropolitan Line (as recorded in our February 1 issue) and before the end of this year another experimental car would be in service to establish a line for future design. It would be of saloon type with all the seats cross-seats. Two vestibules about a quarter of the length of the car from each end, would be separated from the passengers' seating accommodation by partitions and hand-operated sliding doors. Fluorescent lighting would be installed. The car would be finished generally in Perspex lower panels, with anodised aluminium and wood in the upper portion.

At the beginning of the war, London Transport had 2,800 railway coaches in daily service. No additional cars were put in service during the war, but, thanks to thorough overhaul, the old cars stood the heavy strain. In fact, 36 per cent. fewer delays occurred in 1945 than in 1939.

Modern Rolling Stock

During the next two years London Transport proposed to buy 143 new cars and gradually to withdraw the older ones. By December, 1947, it was hoped to have some of the new cars running on the District and Metropolitan Lines, formed into complete trains with 82 old cars remodelled. The new rolling stock would be more comfortable and smoother running than pre-war types. The improvements would include a new patterned moquette and fluorescent lighting.

Although 11,000 drivers and conductors, 5,000 men for engineering grades, and another 1,000 for railway operation had been recruited during the year ended June 30, 1946, there was still a need for 1,460 men to build, maintain, and operate the vehicles needed to carry out London Transport's future plans.

L.N.E.R. Ambulance Competition

For the first time since 1939, the L.N.E.R. England Scotland contest for the company's Ambulance Challenge Shield took place at York, on August 2. The competing teams were two from London, Bishopsgate and Kings Cross (Locomotive), and, to represent the Scottish Area, Coatbridge (Kipps Works) and Glasgow (Queen Street). Bishopsgate won with 335½ marks out of a possible 400; and Kings Cross was second, with 324; Coatbridge, third, with 310½; and Queen Street, fourth, with 267½.

Mr. C. M. Jenkin Jones, Divisional General Manager, North Eastern Area, who presented the shield to the winners, is an Officer of the Order of St. John. The judges were Dr. A. C. White-Knox, of London, and Dr. J. R. Sutherland, of Glasgow. Also present were:—

Messrs. T. F. Cameron (Divisional General Manager, Scottish Area, Edinburgh); J. E. M. Roberts (Assistant Divisional General Manager, N.E. Area, York); E. M. Rutter (Superintendent, York); R. A. Smeddle (Mechanical Engineer, Darlington); E. D. Trask (Locomotive Running Superintendent, Edinburgh); C. M. Stedman (Locomotive Running Superintendent, York); and L. E. Marr (Passenger Manager, Edinburgh).

Ambulance interests were represented by Messrs. W. Goodley (Centre Secretary, Southern Area, Liverpool Street); S. Cooper (Centre Secretary, N.E. Area); E. Dodds (Centre Chairman, N.E. Area); A. Philip (Ambulance Secretary, Scottish Area); R. Marshall (General Secretary, St. Andrews Ambulance Association of Scotland); and G. E. Craft (of the St. John Ambulance Association).

New Vehicles for L.M.S.R. Royal Train

Two new railway saloons completed at the L.M.S.R. Carriage Works at Wolverton (Bucks) in 1941, and extensively used during the wartime journeys of the King and Queen, are now included in the permanent formation of the L.M.S.R. Royal Train.

These saloons are for the use of the King and Queen, and each comprises lounge, bedroom, and bathroom, together with accommodation for personal attendants. Constructionally, the vehicles are identical, each being carried on 12 wheels and having a length of 69 ft. and a weight of 57 tons. Each saloon is air-conditioned, and is fitted with a private telephone; the King's saloon is equipped with a 12-valve radio receiver.

In addition to the new Royal saloons, there was constructed at the same time for use on the Royal Train a 52-ton combined sleeper, brake and power car, having sleeping accommodation for 14 train staff, an engine-room for generator sets (providing power and light throughout the train), and a 25-line automatic telephone exchange. During the war the Royal Train travelled nearly 36,000 miles on the L.M.S.R., and was, in addition, used for many journeys over other railways.

L.M.S.R. International Ambulance Competition

The L.M.S.R. International Ambulance Competition between the leading teams in England & Wales and Scotland, which was inaugurated in 1929, and remained in abeyance during the war period, was revived at Derby on August 14. Six teams took part in the competition, England & Wales being represented by Uttoxeter, Bolton, and Crewe Machine Shop "B"; and Scotland by Dundee West, Edinburgh, and Glasgow (Eglinton Street). The team test was based on a supposed mishap at an open air zoo. Other tests consisted of treatement of individual injuries and a *viva voce* examination.

The result of the competition was:—

Team	Marks			
	Team test	Individual injuries	Questions	Total
	260	200	200	660
1—Crewe Machine Shop "B"	226	183	164½	573½
2—Uttoxeter	222	163	175	560
3—Glasgow (Eglinton St.)	210	165	175	550
4—Edinburgh	228	161½	157	546½
5—Dundee West ...	205	181	159	545
6—Bolton	211	156	150	517

The presentation of prizes was made by Mr. H. J. Comber, Chief Officer for Labour & Establishment, and the proceedings were presided over by Mr. C. Phizackerley, Divisional Superintendent of Operation, Derby.

London Transport Station Gardens Competition

Hammersmith Station, Metropolitan Line, won first prize in the London Transport station gardens competition. The stationmaster, Mr. Harry Barker, is seen above in the prize-winning garden

Notes and News

Belgian Railways London Office.—The London office of the Belgian Railways & Marine (delegate Mr. A. Mertz) is now at 167, Regent Street, W.1.

Senior Draughtsman Required.—A senior draughtsman is required by Charles Roberts & Co. Ltd., Horbury Junction, near Wakefield. See Official Notices on page 227.

Sunday Service on Aldeburgh Branch, L.N.E.R.—The Saxmundham-Aldeburgh branch of the L.N.E.R. was re-opened to Sunday traffic as from Sunday, August 18, with four trains each way.

Locomotive & Mechanical Engineer Required.—A locomotive and mechanical engineer, not over 35 years of age, is required for development work in the application of oil fuel to steam locomotives. See Official Notices on page 227.

Sailings to Ireland by L.M.S.R.—Two L.M.S.R. ships instead of one are to sail from Heysham to Belfast every Friday until August 30, and from Belfast to Heysham every Saturday until August 31. Passengers desiring to travel by these additional sailings should make immediate application for sailing tickets.

Administrative Assistant Required.—An administrative assistant, grade II, is required by the Nigerian Railway for one tour of 18 to 24 months, with possible permanency. Candidates, not over 35, must have matriculated and should preferably hold a B.Com. or B.Sc.(Econ.) degree or have followed a course of study for associate membership of a recognised secretarial body. See Official Notices on page 227.

Restoration of Continental Train Ferry.—The Harwich-Zeebrugge train ferry service of the L.N.E.R., which ceased at the outbreak of the war, was resumed on August 16. The *Essex Ferry*, known before the war as *Train Ferry No.* 1, inaugurated the service from Harwich and returned from Zeebrugge the next day with Italian railway wagons loaded with fruit for the London market. At present there are three sailings each way weekly.

Fruit Traffic from the Vale of Evesham.—The G.W.R. expects 20,000 tons of plums from the Vale of Evesham between now and the end of September. Reports from the area suggest a heavy harvest, and 15 express freight trains are scheduled to run daily. Plums picked in the morning are being despatched the same afternoon and evening, so as to be in the London, Midland, Northern, Scottish, Welsh and West of England markets next morning. Loads will rise to between 400 and 500 wagons daily.

Demonstrations of Hymatic Portable Air Compressor.—The Hymatic Engineering Co. Ltd., of Redditch, in consequence of the recent successful demonstration of the new Hymatic portable air compressor set to representatives of the technical press, has decided to retain in its factory a completely equipped demonstration room for the purpose of showing overseas buyers the many operations for which this new product may be used. The set was described in our August 9 issue. A comprehensive demonstration has been planned to show the set operating a range of small tools, including drills, screwdrivers, pneumatic hammers and tin-snips. Spray-paint-

ing, tyre-inflation, dusting and spraying for medical and agricultural purposes are also demonstrated. In addition to the portable set, the range of larger compressor sets manufactured by the company is available for inspection in the demonstration room. Buyers visiting this country are invited to get in touch with the company. A demonstration can be arranged at 48 hr. notice.

Patents: "Licences of Right."—Notice has been given that the indorsements "Licences of Right" on the following Letters Patent were cancelled on July 23:—

No. 476,819, in respect of totally-enclosed fan-cooled dynamo-electric machines (grantee: English Electric Co. Ltd.).

No. 514,804, in respect of electric switchgear (grantee: English Electric Co. Ltd.).

Road Transport of Goods.—In accordance with the arrangements agreed with the Road Haulage Association to come into force when the Government's Road Haulage Organisation came to an end at midnight on August 16-17, 1946, the Minister of Transport has made an Order revoking, as from August 17, the Road Transport of Goods Order, 1944, which placed restrictions on the movement of goods by road for distances over 60 miles.

Assam Railways and Trading Co. Ltd.—An extraordinary general meeting of the Assam Railways and Trading Co. Ltd. will be held at Winchester House, Old Broad Street, London, E.C.4, on September 4 for the consideration of new Articles of Association of the company. The present articles are now out of date owing to the changes consequent upon the sale of the railway operated by the company to the Government of India in 1945 (see our February 2, 1945, issue).

Accident Near Willesden Green, L.N.E.R.—A collision occurred early on August 16 just east of Willesden Green on the L.N.E.R. when two light engines running coupled ran into the rear of an up goods train, and the debris was fouled by the 6.55 a.m. Marylebone-High Wycombe passenger train. Damage to coaches and track was considerable and both L.N.E.R. lines were blocked. Current was cut off on the adjoining Metropolitan and Bakerloo Lines, over which the wreckage extended, and early rush-hour trains were delayed. One passenger and two railwaymen were injured slightly.

Railway Charges Inquiry.—The National Coal Board has given notice that it wishes to be represented at the Railway Rates Tribunal public inquiry into railway rates, fares, and charges which opens in London on September 16. The Mining Association of Great Britain also has submitted a wish to be heard. Local authorities in London and the provinces, including the London County Council, are among more than forty bodies which have given notice that they desire to be heard. Sir Bruce Thomas, K.C., will be Chairman. Mr. Lionel Heald, K.C., has been retained on behalf of the four main-line railway companies.

Twenty-Five Million Bricks by Rail.—Because of an acute shortage of bricks in Scotland the Ministry of Works has arranged for some 25 millions to be sent by rail from Fletton, Peterborough. The movement began on May 31, and every month for five months, five million bricks in twenty trains, each of 50 wagons, will be run by the L.N.E.R. and L.M.S.R. *via* Berwick and Carlisle respectively. The bricks will go to Glasgow Corporation, the Lanarkshire, Aberdeen, and Perth County Councils, Dundee Town Council, and Scottish Special Housing Association.

New Manchester Office, B.I. Callender's Cables.—The address of the Manchester office of British Insulated Callender's Cables Limited has been changed, and is now: Faraday House, Todd Street, Manchester, 3. Telephone No. Blackfriars 7044-5.

Derailment on L.M.S.R. Southend Line.—One of the coaches of a relief to the 9.36 a.m. Fenchurch Street—Southend train on August 15 was derailed when the train ran back after stalling on an incline a mile from Laindon. Passengers walked to Laindon, where a special train took them on to Southend. Other trains were diverted through Tilbury.

New London-Rome Air Line.—A new British air line between London and Rome was inaugurated on August 9 by the British Overseas Airways Corporation. The service during August is bi-weekly, with departures from London on Tuesdays and Fridays, and from Rome on Wednesdays and Saturdays. Daily flights are planned for September.

Road Accidents in June, 1946.—The return issued by the Ministry of Transport of the number of persons reported to have died, or to have been injured, as a result of road accidents in Great Britain during the month of June last shows 412 deaths (compared with 395 in June, 1945), 3,036 seriously injured (compared with 2,617 in June, 1945), and 10,384 slightly injured (compared with 8,207).

New I.C.I. Research Laboratories.—Imperial Chemical Industries Limited has leased the house and laboratories at "The Frythe," Welwyn, Herts, for long-term general and academic research. Among the subjects studied will be the deformation of materials under high stresses of short duration. The laboratories at "The Frythe" are intended to be temporary, until a site at Butterwick Wood, near St. Albans, can be developed.

Dorman Long Engineering Shop Extensions.—Important extensions to the main structural engineering shops of Dorman, Long & Co. Ltd., Middlesbrough, are being undertaken to facilitate the handling and fabrication of the exceptional tonnages of structural steelwork which the company has on order for home and export. The area of the existing shops, already much the largest in Great Britain, is being increased by over 110,000 sq. ft. at a cost of approximately £120,000. The extensions will be equipped with up-to-date handling devices to ensure the even flow of material and enable the output of fabricated steel from the shops to be increased by about 20 per cent.

Gloucester Railway Carriage & Wagon Co. Ltd.—Net profit for the year to May 31, after deducting £43,000 for income tax, was £67,778, as against £42,207 in 1944-45, this year's figure including £16,638 income tax recoverable in respect of the year ended April 5, 1943. Adding £16,423 brought forward, the disposable balance is £84,201, compared with £61,110 in 1944-45. The directors recommend payment of an ordinary dividend on September 7 of 15 per cent., less income tax at 9s. in the £, and the transfer to general reserve of £25,000, raising that reserve to £300,000. This dividend restores the level applicable immediately before the war, after dividends of 7½ per cent. for the past five years. The report states that a subsidiary company, known as the Gloucester Wagon Hiring Co. Ltd., was formed during the year to take over the whole of the wagon fleet which previously had belonged to the company.

Increased Harwich-Antwerp Service.—The L.N.E.R. Harwich-Antwerp steamship service, resumed on July 29, as reported in our August 2 issue, will be increased to two sailings a week each way

British and Irish Railway Stocks and Shares

Stocks	Highest 1945	Lowest 1945	Prices August 20, 1946	Rise/Fall
G.W.R.				
Cons. Ord.	60¾	47½	54¾	– ¼
5% Con. Pref.	124½	104½	113½	– ½
5% Red. Pref. (1950)	107¾	101½	103½	—
5% Rt. Charge	137½	120	128½	—
5% Cons. Guar.	135½	117	122½	—
4% Deb.	118	106	115½	—
4¼% Deb.	119½	108	116½	—
4½% Deb.	124½	111½	122	—
5% Deb.	138	124	133½	—
2½% Deb.	83	74½	88½	+ 1
L.M.S.R.				
Ord.	33	23¾	26¾	– ¼
4% Pref. (1923)	65	50	53	—
4% Pref.	80¾	69½	75	—
5% Red. Pref. (1955)	106½	99½	102½	—
4% Guar.	106½	97	100½	—
4% Deb.	110½	102	107	—
5% Red. Deb. (1952)	110½	103½	106½	—
L.N.E.R.				
5% Pref. Ord.	8½	5½	5	– ½
Def. Ord.	4½	2¾	2¾	– ¼
4% First Pref.	62½	49½	51	—
4% Second Pref.	33¾	24½	26½	– ½
5% Red. Pref. (1955)	103	96	99	—
4% First Guar.	104½	95	98½	– ½
4% Second Guar.	97	89½	94	—
3% Deb.	91¾	82½	92	—
4% Deb.	109½	101	107	—
5% Red. Deb. (1947)	103½	100	100	—
4½% Sinking Fund Red. Deb.	106¾	103	105½	+ 1
SOUTHERN				
Pref. Ord.	79½	63	70	– ½
Def. Ord.	27	20½	19¾	– ¼
5% Pref.	124½	104	111	– 1
5% Red. Pref. (1964)	117	107	109½	—
5% Guar. Pref.	135¾	117	122½	– 1
5% Red. Guar. Pref. (1957)	117	106½	111¼	—
4% Deb.	117	104½	113	– ½
5% Deb.	137	124	131½	—
4% Red. Deb. (1962-67)	112	104½	109½	—
4% Red. Deb. (1970-80)	113½	104	109½	—
FORTH BRIDGE				
4% Deb.	106	103	106	—
4% Guar.	106	101	103	—
L.P.T.B.				
4½ "A"	125	117	125½	—
5% "A"	135	127	134½	—
3% Guar. (1967-72)	100	97½	104	—
5% "B"	125½	115	120½	—
"C"	70	58	59½	+ 1
MERSEY				
Ord.	37	31½	30	—
3% Perp. Pref.	72½	68½	72	—
4% Perp. Deb.	104½	104	105	—
3% Perp. Deb.	84	78½	82½	—
IRELAND*				
BELFAST & C.D.				
Ord.	8½	6	7½	—
G. NORTHERN				
Ord.	34	24½	41¾	– ½
Pref.	52½	42¾	61	– 1
Guar.	80	68	91½	+ ½
Deb.	97½	87½	106	—
IRISH TRANSPORT				
Common	—	—	18/9	+ 1½
3% Deb.	—	—	103¾	+ ⅛

* Latest available quotation

OFFICIAL NOTICES

Locomotive Building Industry in India

TATA LOCOMOTIVE & ENGINEERING CO. LTD.

APPLICATIONS are invited for the post of Manager of a locomotive and boiler building works now being set up at Jamshedpur, Behar, India.

The post carries full responsibility for the administration of the Workshops and calls for sound experience in heavy engineering or locomotive work, good executive ability and first-hand knowledge of up-to-date production methods.

Applications, which will be treated in strict confidence, should state age, experience and salary expected.—Messrs. Tata Limited, 18, Grosvenor Place, London, S.W.1.

BRITISH WORK ON PERSIAN RAILWAYS. The achievements and difficulties of the R.Es. during the 15 months in which they laid the foundation for effective aid to Russia. Reprinted from *The Railway Gazette*, February 2 and 16, 1945. *Price* 1s. *Post free* 1s. 2d.

Crown Agents for the Colonies

COLONIAL GOVERNMENT APPOINTMENTS.

APPLICATIONS from qualified candidates are invited for the following post:—

ADMINISTRATIVE ASSISTANT, GRADE II, required by the Nigerian Railway for one tour of 18 to 24 months with possible permanency. Salary: £400, rising to £720 a year. Commencing salary according to qualifications, experience and War Service. On salary of £400 a year local allowance is £60 and separation allowance for married man is between £84 and £204 a year according to dependants. Outfit allowance, £60. Free passages and quarters. Candidates, not over 35, must have matriculated and should preferably hold a B.Com. or B.Sc. (Econ.) degree or have followed a course of study for Associate Membership of a recognised Secretarial body. Essential qualifications are tact, patience and the ability to express matters briefly and clearly in correspondence. Experience in dealing with staff and establishment matters would be an advantage. Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting M/N/16784 on both letter and envelope.

LOCOMOTIVE and Mechanical Engineer.—Wanted for development work in application of oil fuel to steam locomotives, a Mechanical and Locomotive Engineer. Must have had experience in locomotive works and drawing offices with some running shed experience. Knowledge of oil-fired steam locomotives an advantage. Age not over 35 years.—Write, Box ZA217, Deacon's Advertising, 36, Leadenhall Street, E.C.3.

ARMY staff-officer, age 38, available October, desires occupation in which keen interest and extensive knowledge of railway subjects would find scope. Technical experience includes research, some journalism and, under wartime conditions, practical railway operation. Business experience covers over 20 years handling tramp shipping, export and general executive duties.—Box 107, *The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

SENIOR DRAUGHTSMAN required, experience with Railway Rolling Stock and knowledge of Railway Clearing House Regulations essential.—Apply: Chief Draughtsman, Charles Roberts & Co. Ltd., Horbury Junction, near Wakefield.

on Tuesdays and Fridays as from August 30. This has been made possible by the introduction of another L.N.E.R. ship, the *Dewsbury*, which, like the *Accrington* now engaged upon the Harwich-Antwerp service, was attached formerly to the company's Grimsby fleet.

Holborn—Dartford Service, S.R.—The Southern Railway has reintroduced during peak periods the service between Holborn Viaduct, Blackfriars, Elephant & Castle, and the Dartford loop.

Scinde Punjaub & Delhi Railway Company.—It was notified recently in *The London Gazette* that on June 30, 1946, a sum of £4,168,755 14s. 11d. was invested to provide a sinking fund for the annuities class "B" of the Scinde Punjaub & Delhi Railway Company.

C.P.R. Interim Dividend.—The Canadian Pacific Railway Company has declared a dividend of 50 cents on the ordinary shares, payable on October 1. A similar payment of 2 per cent. on the $25 shares was declared in July, 1945, and was followed by a final of 75 cents (3 per cent.) in February last.

British Standard Specification for Internal Combustion Engines.—With a view to bringing the British Standard Specification for Internal Combustion Engines (excluding carburettor-type engines) into line with current commercial practice, an amendment to B.S. 649-1935 has been issued. Copies of this amendment (P.D. 514) may be obtained free from the Publications Department, British Standards Institution, 28, Victoria Street, London, S.W.1.

Powell Duffryn Limited.—Mr. E. L. Hann, Chairman of Powell Duffryn Limited, said at the recent annual meeting that the company had a number of assets which would not pass to the National Coal Board, and that its life would by no means come to an end merely through the act of nationalisation. The company's three main subsidiaries are concerned with the distribution and export of coal, and with oil storage and oil bunkering, which activities at present are outside the ambit of nationalisation.

Scottish Names for L.N.E.R. Pacific Locomotives.—The four class "A 2/1" Pacific express locomotives of the L.N.E.R., which are not named at present, are to receive the names *Duke of Rothesay*, *Waverley*, *Highland Chieftain*, and *Robert the Bruce*. The decision will revive memories of the Atlantic locomotives of the former North British Railway, all of which are now scrapped, for two of these engines were called *Duke of Rothesay* and *Waverley*, and another carried the name *Highland Chief*.

G.W.R. First Aid Movement.—Mr. W. L. Ayers, of the Divisional Superintendent's Office, Newport, Great Western Railway, has been appointed Divisional Ambulance Secretary to the G.W.R. Newport "A" Division, in succession to Mr. Howard Jones, who is leaving the company's service. Mr. E. J. Hamblin, of the Traffic Department, Reading, has been appointed Divisional Ambulance Secretary to the G.W.R. London "B" Division, in succession to Mr. E. D. Keefe, who has retired from the company's service.

Sales of Government Surplus Machine Tools.—A large selection of general-purpose machine tools is on sale at two additional selling centres for Government-owned surplus machine tools, which were opened at Coventry and Featherstone, near Wolverhampton, on August 20 and 21. The two depots are: Ministry of Supply Store, Daimler No. 2 Factory, Browns Lane, Coventry; and Ministry of Supply Store, Featherstone. The tools can be inspected between 10 a.m. and 4 p.m., Mondays to Fridays, and purchases arranged on the site.

A Standard Body for Trolleybuses.—The completion of a contract for 20 six-wheel 70-seat trolleybuses for the London Passenger Transport Board is announced by Northern Coachbuilders Limited. For some time production by this Newcastle firm has tended towards the standardisation of body types of composite construction, which by jigging throughout ensure interchangability to a high degree, and in the present contract the N.C.B. high-tensile holding down saddles enable a complete body to be unbolted and lifted off the chassis without any dismantling or stripping down. The bodies are similar to those supplied in a recent Bradford Corporation contract, consisting of a fleet of four-wheel 56-seat trolleybuses, though they include a number of L.P.T.B. features. They are mounted on reconditioned chassis to replace bodies damaged during the blitz. The main framing is of seasoned English ash, panelling being in aluminium, and for the windows patent Simplastic glazing is used. Tubular frame seating is to L.P.T.B. standard design, as, also, is the trolley base gantry embodying the dry spot insulator mounting. The cab is the full-width type and the lighting is on low tension supply.

No Discrimination in L.M.S.R. Dining Cars.—The L.M.S.R., in a circular to its catering staffs, states that severe disciplinary action will be taken against dining-car attendants who give preferential treatment to first class passengers. It points out that the menu, charges, and ten per cent service charges are the same for first and third class, and that all food should be apportioned fairly.

Mexican Eastern Railway Co. Ltd.—A general meeting of the members of the Mexican Eastern Railway Co. Ltd. will be held at 112-114, Cannon Street, London, E.C.4, on September 30 at 10.15 a.m., for the purpose of having an account laid before them, and to receive the liquidators' report showing how the winding-up of the company has been conducted and the property of the company disposed of, and of hearing any explanation which may be given by the liquidators; also of determining by extraordinary resolution the manner in which the books, accounts, and documents of the company, and of the liquidators thereof, shall be disposed of.

Railway Landscape Art.—Attention once again is being given to L.N.E.R. station gardens which have evoked a great deal of interest because of their beauty. On many wayside stations cabbages, carrots, and other utility crops have been replaced by flowers. At Holgate excursion station, York, is a notable example of the gardener's art; the title of the city has been laid out in a tablet, 50 ft. by 9 ft., with the word "York" in letters 7 ft. 6 in. high by 7 ft. wide. Some 450 plants of alyssum form the letters and 850 lobelias the deep blue border, and there are six geraniums at each corner. When the flowers fade, the title will be picked out in crazy paving.

Forthcoming Meeting

August 31 (*Sat.*).—The Permanent Way Institution (London Section), visit to the Eastern Extension of the Central London Railway.

Railway Stock Market

With a slightly larger volume of business in some sections, stock markets again showed firmness, reflecting the continued strength of British Funds. Industrials displayed a number of strong features, although following the sharp gains of last week both Imperial Chemical and Dunlop Rubber were subject to profit-taking. Sentiment was helped by the decision to resume fortnightly settlements in place of the present regulations for cash dealings, which have been in force since the beginning of the war. This will not take place for three months and there will then be no resumption of contango or option operations. Nevertheless, it is agreed generally that fortnightly settlements will make for an increased volume of business and facilitate healthy market conditions, the assumption being that in three months' time brokers and jobbers will have been able to re-establish their staffs at pre-war proportions.

A feature of markets this week has been increased buying interest in the nationalisation groups. Cable & Wireless ordinary and preference were active and higher on balance, while iron, coal and steel shares showed widespread although moderate gains. Buyers of the latter again were attracted by the large yields. The assumption is that it may be two years or more before nationalisation is effected, and that meanwhile in numerous cases dividend payments of colliery companies are likely to be above the conservative basis of the war period.

In contrast, home railway stocks were out of favour, prices showing fractional declines as a result, although it would appear that some of the points being discussed in the market in regard to colliery and kindred shares may apply also to home rails. So far as can be judged, there is no reason to believe that Government plans in regard to transport nationalisation will be completed in a shorter time than those in respect of the colliery industry, particularly if road and rail interests are to be brought under nationalisation control in a combined scheme. Meanwhile the existing fixed rental agreement will remain in force, implying dividends at around last year's levels, on which basis yields at current levels are substantial.

Sentiment as to home rails has been affected adversely by the ingenious and divergent suggestions current from time to time in the market as to a possible basis for nationalisation compensation. It should not be overlooked, however, that although the railway companies have never indicated their views on this important matter, they emphasised that, in agreeing to the wartime control plan, they in no way gave up the right to standard revenue as defined in the 1921 Act.

Comparison with a week ago shows that Great Western had eased from 55 to 54¾, while the 5 per cent. preference and 4 per cent. debentures, at 113 and 115 respectively, both lost a point. Moreover, Great Western guaranteed stock at 122 was fractionally lower, and prior charge stocks of the other main-line railways reflected a similar trend. This was attributed to the small demand in evidence: little selling was reported.

L.M.S.R. at 26¼ (against 27⅛) more than lost last week's improvement: the 1923 preference, however, remained at 53½, although the senior preference lost ½ at 74½. L.N.E.R. second preference has come back from 26¾ to 26¼, the first preference was a point lower at 50½, while the preferred ordinary eased ¼ at 5. Southern deferred was ¼ down at 19¾, but the preferred ordinary at 70 was unchanged on balance, although the 5 per cent. preference lost a point at 110½, as did the 4 per cent. debentures at 112½.

Demand for London Transport "C" remained a good feature, the price rising further from 58 to 60. A year ago the level was 63, and highest and lowest levels during the whole twelve months were 70 and 58 respectively. The yield is well below that on the ordinary or equity stocks of the main-line railways, partly because there is uncertainty whether London Transport will come under the Government's nationalisation plans, particularly as it was formed under an Act sponsored by the Labour Government in 1933. In any case the assumption is that whatever the future stockholders will have their right to the statutory dividend, which is well above that paid under the fixed rental agreement. If London Transport were included in a wider scheme of nationalisation, compensation for holders of the "C" stock would have to give full regard to statutory dividend rights.

Argentine railway stocks have become firmer in advance of the expected official statement as to the resuls achieved to date by the British Mission's talks. Buenos Ayres Great Southern rallied from 12¾ to 13¼, although the 5 per cent. preference and 4 per cent. debentures at 29 and 72 respectively were lower on balance. Central Argentine at 9½ was unchanged, but the 4 per cent. debentures rallied to 68, and Buenos Ayres Western 4 per cent. debentures at 70 were also better. Nitrate Rails shares lost a further 2s. 6d. at 80s.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1944/5	No. of Week	Aggregate traffics to date: Totals 1946/7	Aggregate traffics to date: Totals 1945/6	Aggregate traffics to date: Increase or decrease	Shares or Stock	Prices: Highest 1945	Prices: Lowest 1945	Prices: August 20, 1946
				£	£		£	£	£				
South & Central America	Antofagasta	834	11.8.46	28,660	+ 7,850	32	1,026,790	960,790	+ 66,000	Ord. Stk.	12	8⅛	10
	Arg. N.E.	753	10.8.46	ps.349,100	+ ps.44,500	6	ps.1,919,200	ps.1,869,000	+ ps.50,200	,,	10	5⅛	8
	Bolivar	174	July, 1946	4,264	+ 137	30	30,100	34,402	− 4,302	6 p.c. Deb.	8½	5½	6½
	Brazil	—	—	—	—	—	—	—	—	Bonds	25	17	27
	B.A. Pacific	2,771	10.8.46	ps.2,100,000	+ ps. 17,000	6	ps. 12,938,000	ps.11,808,000	+ ps.1,130,000	Ord. Stk.	7	5	8
	B.A.G.S.	5,080	10.8.46	ps.3,244,000	+ ps.197,000	6	ps. 19,996,000	ps.18,323,000	+ ps.1,673,000	Ord. Stk.	13⅜	10¼	13½
	B.A. Western	1,924	10.8.46	ps 1 145,000	+ ps.57,000	6	ps. 6,861,000	ps.6,508,000	+ ps.353,000	,,	12¾	9½	15
	Cent. Argentine	3,700	10.8.46	ps.3,173,420	+ ps. 1,770	6	ps. 18,537,535	ps.17,965,050	+ ps. 572,485	,,	9¾	7	9
	Do.	—	—	—	—	—	—	—	—	Dfd.	5	2⅜	6
	Cent. Uruguay	970	3.8.46	37,555	− 527	5	180,482	185,109	− 4,627	Ord. Stk.	7½	4	8
	Costa Rica	262	May, 1946	32,411	+ 5,206	48	319,231	259,151	+ 60,080	Stk.	16½	13	12
	Dorada	70	June, 1946	35,600	+ 1,820	26	186,275	182,375	+ 3,900	1 Mt. Deb.	103	102	102½
	Entre Rios	808	10.8.46	ps.399,800	− ps.70,900	6	ps.2,505,200	ps. 2,617,100	− ps.111,900	Ord. Stk.	7½	4½	6½
	G.W. of Brazil	1,030	10.8.46	23,900	+ 3,000	32	880,500	787,500	+ 93,000	Ord. Stk.	30/−	23/6	22/6
	Inter. Ctl. Amer.	794	June, 1946	$802,902	+ $33,920	25	$5,657,516	$4,730,391	+ $927,125	—	—	—	—
	La Guaira	22¾	July, 1946	6,659	+ 298	29	39,698	43,290	− 3,592	5 p.c. Deb.	78	70	58xd
	Leopoldina	1,918	10.8.46	64,680	+ 1,929	32	1,814,432	1,579,115	+ 235,317	Ord. Stk.	4¼	3½	3½
	Mexican	483	31.5.46	ps.1,464,000	+ ps.459,100	21	ps.18,661,800	ps.13,441,600	+ ps.5,220,200	Ord. Stk.	¼	¼	¼
	Midland Uruguay	319	July, 1946	18,824	− 906	4	18,824	19,730	− 906	—	—	—	—
	Nitrate	382	15.8.46	7,331	− 488	32	135,362	111,795	+ 23,567	Ord. Sh.	75/6	67/6	77/6
	N.W. of Uruguay	113	June, 1946	5,098	+ 350	52	66,462	67,138	− 676	—	—	—	—
	Paraguay Cent.	274	9.8.46	$59,770	− $11,510	6	$358,554	$397,670	− $39,116	Pr.Li.Stk.	79⅛	77	73½
	Peru Corp.	1,059	July, 1946	150,902	+ 16,152	4	150,902	134,750	+ 16,152	Pref.	10⅜	7⅛	16
	Salvador	100	May, 1946	c 123,750	+ c 11,750	44	c1,517,450	£ 1,420,000	+ c 97,450	—	—	—	—
	San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	60¼	50½	51½
	Talca	156	July, 1946	3,795	+ 2,010	4	3,795	1,785	+ 2,010	Ord. Sh.	17/−	10/6	18/9
	United of Havana	1,301	10.8.46	52,828	+ 9,805	6	326,860	277,027	+ 49,833	Ord. Stk.	3	1	1⅜
	Uruguay Northern	73	July, 1946	1,098	− 834	4	1,098	1,932	− 834	—	—	—	—
Canada	Canadian National	23,569	June, 1946	7,900,750	−2,013,500	26	46,539,250	53,467,250	− 6,928,000	—	—	—	—
	Canadian Pacific	17,037	14.8.46	1 450,250	− 170,000	32	43,695,750	49,096,000	− 5,400,250	Ord. Stk.	24	14⅜	22⅛
Various	Barsi Light†	202	June, 1946	1,893	+ 140	13	73,395	66,652	+ 6,743	Ord. Stk.	131	123	114
	Beira	204	May, 1946	88,294	+ 11,733	32	597,258	613,138	− 16,060	—	—	—	—
	Egyptian Delta	607	10.7.46	17,651	+ 1,334	14	163,964	161,765	+ 2,199	Prf. Sh.	10	8⅛	5
	Manila	—	—	—	—	—	—	—	—	B. Deb.	71	55½	68½
	Mid. of W. Australia	277	June, 1946	16,780	+ 4,914	52	208,969	219,103	− 10,134	Inc. Deb.	97½	85	75
	Nigeria	1,900	June, 1946	441,797	+ 167,749	13	1,120,904	837,609	+ 283,295	—	—	—	—
	Rhodesia	2,445	May, 1946	548,881	+ 52,104	32	4,066,788	3,988,192	+ 78,596	—	—	—	—
	South African	13,301	29.6.46	1,140,809	+ 131,092	13	13,966,179	12,567,455	+ 1,398,724	—	—	—	—
	Victoria	4,774	May, 1946	1,351,280	+ 4,246	—	—	—	—	—	—	—	—

† Receipts are calculated @ 1s. 6d. to the rupee.